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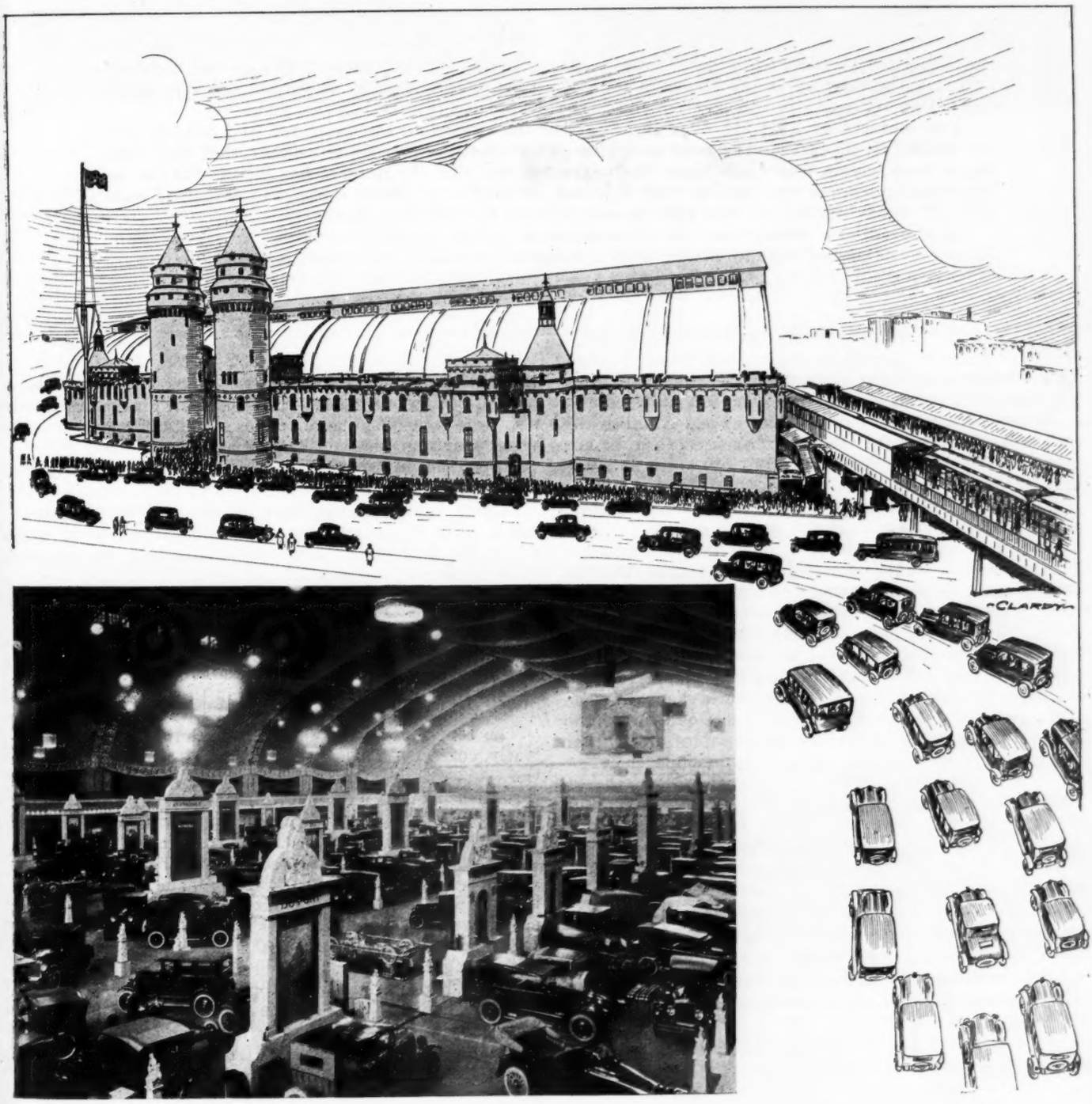
AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

VOL. L NEW YORK—THURSDAY, JANUARY 10, 1924 No. 2

# Lure of Motor Cars In Ideal Setting Draws Record Crowds to Big Bronx Armory Miles Away



# New York Show Is Greatest Ever! Its Success Assured

## Keen interest in cars takes throngs far into Bronx. Big drill hall ideal setting. Four wheel brakes and balloon tires features. Buyers many. Miles wins again.

By James Dalton

**AN astounding increase in motor vehicle registrations for the United States on Jan. 1, bringing the total up to the almost unbelievable figure of 15,281,295, is disclosed by the semi-annual survey made by Automotive Industries, published in detail in this issue.**

**The increase of 2,916,918 over the total for the same date last year and of 2,233,167 over the total July 1, exceeds the most sanguine expectations. It indicates either that the number of first buyers was much larger than expected and that the number bought in 1923 for replacement purposes was smaller than expected, or that a very large number of used cars went into the hands of persons who thus became drivers for the first time.**

**It is peculiarly fitting that the announcement of an amazing increase in registrations should be published simultaneously with a complete account of the most successful New York show ever held.**

AT 10 o'clock Saturday night Sam Miles, dean of automobile show managers, was seen strolling jauntily around the balcony of the 258th Field Artillery armory up at 193d Street in the far stretches of the Bronx, on the very border of Westchester county. His hat was cocked rakishly at an angle almost as acute as that of a long, black, unlighted cigar. He leaned ever so lightly on the cane he carries to support his game foot.

He held a whispered conversation with the conductor of the orchestra and it was feared for a time that he contemplated leading the music in "Hail, The Conquering Hero Comes," but innate modesty would not permit.

Mr. Miles was well pleased with himself and with the world. It was quite logical that he should be. As he stood on that balcony and looked out over the biggest stretch of unobstructed floor space in the world he saw some 10,000 persons who had come from every quarter of the Metropolitan district on the coldest night of the winter to see New York's annual national automobile show.

Sam Miles had said they'd do it and they did.

The veteran motor show impresario was a bit nervous earlier in the day, however. When he went out to his conning tower at 10 o'clock it was the first time in eight hours that he had emerged from his cubby hole of an office on the balcony of the armory. It has been his invariable custom for 24 years to look the crowds over as they enter when the doors are opened at 2 o'clock the first day of the show. He had developed a sort of second sight which enabled him, after this preliminary peek, to estimate within a few hundred what the total attendance for the week would be.

Mr. Miles went out at 2 o'clock Saturday to give the assembling multitude his usual once-over. He was curious but confident. Promptly on the hour the doors were opened but no one came. Sam looked longingly but all he saw were some 2000 more or less expectant salesmen scattered over four acres of floor space.

He sighed, his shoulders drooped a bit pathetically and he hobbled back to his office.

"Guess I might better have retired last year," he muttered. His lieutenants stood around full of silent sympathy for their chief. Even the atmosphere was charged with gloom.

### Subway Wreck Delays Crowds

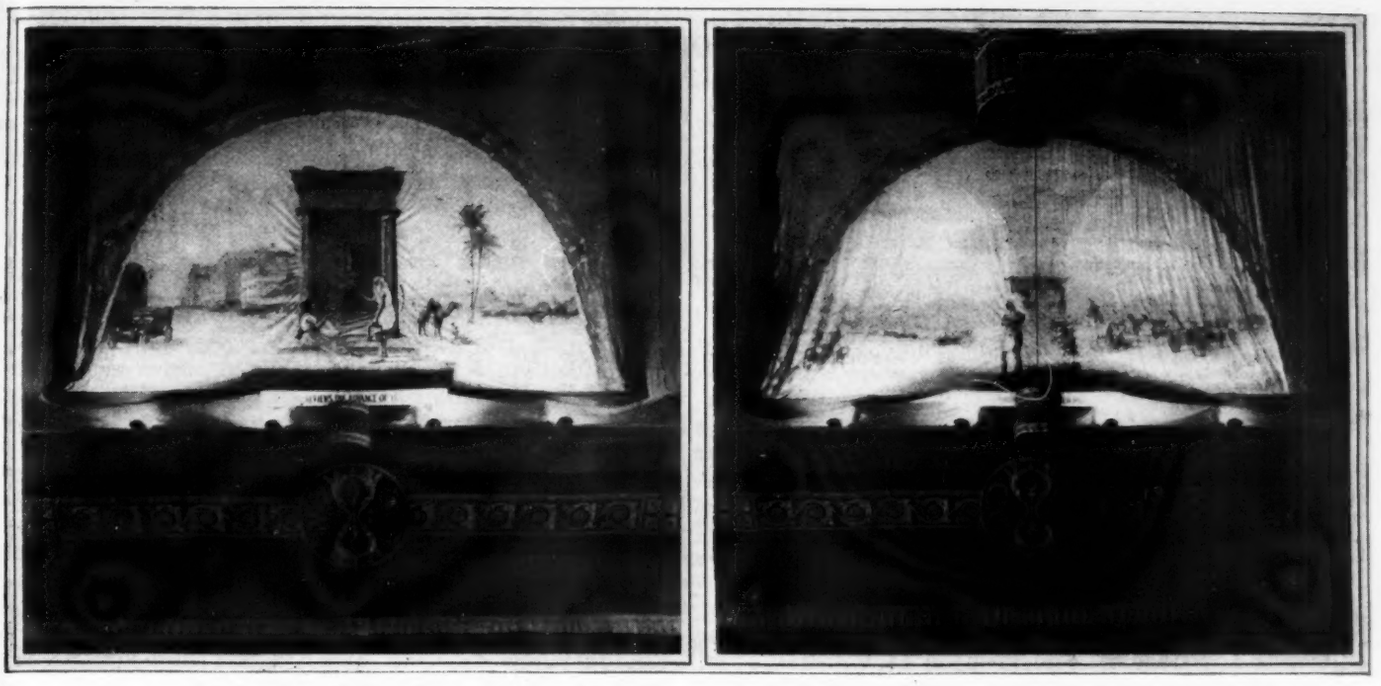
Then there was a clatter of feet on the iron stairway and the door burst open.

"It's all right, Sam," gasped a hard breathing scout. "There's been a couple of wrecks in the subway and that's delayed the crowd, but they're on the way."

The report of the intelligence department was meticulously correct. There had been a rear-end collision in the subway, something exceedingly rare, which had thrown a monkey wrench into the schedule. Before that mess could be straightened out another train had been derailed at a junction point and no traffic could get through to the armory until it had been hoisted back on the rails.

"Gosh," said Sam afterwards, "I hoped nobody would be hurt in those accidents but I was glad to know why people weren't coming to the show."

Sundry factory officials, but mostly sales and advertising managers, who had gathered early to see what was going to happen, stood first on one leg and then on the other. Then, moaning "it's a frost," they stole silently away. By 3 o'clock the armory had been entirely denuded of factory officials. They had sought their hotel rooms where they could suffer to better advantage.



*Mural decorations at each end of the big drill hall depicted the progress of transportation*

An army of sad-faced salesmen, deserted by their chiefs, nervously paced their beats thinking how far they were from home and wondering if they couldn't organize a little game of some kind down in the far reaches of the basement floor. They wanted to get away but couldn't.

They looked up at the handsome pylons marking the different displays, which resembled war memorials and the query went down the line:

"Who's buried under yours?"

Then those blocked subway trains came rolling in, one after another. Apathetic ticket sellers and gate keepers were galvanized into life.

The crowds were coming and they came and came and came.

## Attendance Is Large

Rather slowly at first they trickled in and were lost in the vast reaches of the mammoth drill hall. But while a single company may not be apparent in a big armory a full regiment is easily discerned and by 3 o'clock the visitors were numerous enough to make themselves felt.

The sad-faced salesmen began to look a little less depressed. The prospects were coming and their professional pride was stirred. Motors moved lazily in stripped chassis and the incessant din of closing car doors was heard above the buzz of conversation.

The show was a little late in starting but it was off with a bang. Before the dinner hour it was an assured success and before the doors closed for the night the assurance of success was copper riveted. The amazing fact was that the attendance was as large or larger than on the opening day last year at Grand Central Palace, nine miles nearer Times Square.

It was an astounding tribute to public interest in motor cars. The mercury began slipping down thermometer tubes around noon and it kept right on slipping. Before the dinner hour icy blasts were slapping the faces of New Yorkers who ventured out of doors. Subway trains are not notoriously warm and breezes sift through the doors and windows of taxicabs. Even closed private cars are not immune to marrow-piercing blasts. Getting far up into the Bronx was something of an adventure, therefore, on a wintry afternoon and evening.

But it was worth the journey.

As a spectacle alone the show never has been equalled in New York, or London or Paris. The armory houses more than a million dollars' worth of automotive products, with 71 different makes of motor cars, including seven taxicabs, to say nothing of 283 parts and accessory exhibits.

The huge drill hall, which has been converted into a palace, is a tribute to the artistry of Sam Miles and his associates. It took imagination to grasp the possibilities of a building dedicated to heavy artillery and marching men.

Much has been written of the magnitude of the drill hall, stretching 600 ft. by 300 ft., unobstructed by a post or pillar, but it must be seen to be appreciated. It has given the makers of America's motor cars, for the first time, a fitting theater for the presentation of their products.

By the masterly use of thousands upon thousands of yards of cotton bunting, arranged in huge squares with painted designs in the center of each, the steel girders in the roof have been concealed and the ceiling made to look like that of a palace in the heyday of the French kings. Enormous chandeliers, which carry out the color scheme, cast a soft radiance over the glittering array of automobiles.

## Pylons Are Works of Art

The pylons marking the various car displays are veritable works of art. On either side is a panelled painting and each is topped by what appears to be a marble statue. Similar statues mark the corners of the wide aisles. At either end of the great building are huge allegorical paintings, 60 by 40 ft., depicting the contrast between ancient and modern transportation. The cold cement floor has been covered with linoleum and floor board and the iron railing on the balcony concealed with soft hued draperies.

A mammoth but ugly room has been given, most successfully, an atmosphere of simple but impressive dignity.

In this setting is being shown what is probably the finest display of motor cars ever assembled under one roof. There is an amazing number of new jobs but few which are wholly new to the readers of AUTOMOTIVE INDUSTRIES

## STATISTICAL PICTURE OF FIVE NEW YORK SHOWS

| | 1920 | 1921 | 1922 | 1923 | 1924 |
|---|---|---|---|---|---|
| Exhibitors | 307 | 307 | 337 | 356 | 294 |
| Car Exhibitors | ... | 86 | 87 | 78 | 173 |
| Accessory Exhibitors. | 225 | 221 | 250 | 278 | 221 |
| No. Vehicles | 334 | 341 | 310 | 283 | 347 |
| No. Stripped Chassis. | ... | 35 | 36 | 42 | 39 |
| Complete Taxicabs | ... | ... | ... | ... | 11 |
| †BODY STYLES (Gasoline and Steam Cars Only) | | | | | |
| Open Cars | 176 | 163 | 158 | 127 | 117 |
| 2-3 Passenger | ... | 40 | 29 | 14 | 16 |
| 4-5 Passenger | ... | 91 | 102 | 92 | 91 |
| 6-7 Passenger | ... | 32 | 27 | 21 | 10 |
| Closed Cars | 119 | 120 | 149 | 155 | 180 |
| 2-3 Passenger | ... | 23 | 37 | 19 | 21 |
| 4-5 Passenger | ... | 80 | 80 | 101 | 121 |
| 6-7 Passenger | ... | 27 | 32 | 35 | 38 |

| †ENGINE CHARACTERISTICS (Gasoline Cars Only) | 1920 | 1921 | 1922 | 1923 | 1924 |
|---|---|---|---|---|---|
| Four Cylinder | 65 | 80 | 84 | 83 | 66 |
| Six Cylinder | 223 | 213 | 204 | 199 | 188 |
| Eight Cylinder | 29 | 31 | 41 | 37 | 43 |
| Twelve Cylinder | 7 | 3 | 2 | 1 | 0 |
| Poppet Valves | ... | 321 | 319 | 307 | 285 |
| Sleeve Valve | ... | 12 | 8 | 12 | 12 |
| "L" Head | ... | 180 | 206 | 209 | 204 |
| "T" Head | ... | 29 | 15 | 12 | 8 |
| Valve in Head | ... | 119 | 86 | 83 | 67 |
| Valve in Head and Side | ... | ... | ... | 16 | 6 |
| †WHEELS (All Cars) | | | | | |
| Artillery | ... | 215 | 229 | 235 | 128 |
| Wire | ... | 70 | 67 | 21 | 24 |
| Disc | ... | 56 | 37 | 71 | 145 |

| †FOUR WHEEL BRAKES (No. of Models Fitted) | 1920 | 1921 | 1922 | 1923 | 1924 |
|---|---|---|---|---|---|
| Standard Equipment | ... | ... | ... | ... | 44 |
| Optional at Extra Cost | ... | ... | ... | ... | 37 |
| †BALLOON TIRES (No. of Models Fitted) | | | | | |
| Standard Equipment | ... | ... | ... | ... | 14 |
| Optional at Extra Cost | ... | ... | ... | ... | 46 |

† Less Taxicab.
‡ Including Taxicab.

because most of them have been described in detail as they have been brought out in the past few weeks.

From a mechanical point of view 6-cylinder engines, four wheel brakes, and balloon tires are the features.

A total of 347 vehicles is shown, including stripped chassis of 36 passenger cars and three taxicabs.

Balloon tires are optional equipment at extra cost on 46 models and standard equipment on 14.

Four wheel brakes are optional equipment at extra cost on 37 models and standard equipment on 44.

Chassis and engine improvements, not previously described, are relatively few but there are enough of them to mark continued advance in design. The same is true of body designs. Greater comfort and more refinements are given at moderate cost.

Very few price changes, and none of them important, were announced. Advances and reductions were about equally divided. The public seems to realize that it is getting greater automobile value per dollar than ever before.

All in all, it's a show par excellence in the most perfect setting an industrial exposition ever had. The industry, however, has discounted the new models which are shown and is chiefly concerned with the appeal to the public of an exposition so far removed from the center of New York.

But, "unless we have a blizzard," as Sam Miles phrased it, the attendance almost certainly will equal any previous record and the mark set last year was close to 250,000. It might be said that Sam added, piously, "I've been praying for a month that we won't."

There was an indefinable something about the crowd on the opening day which stamped it as different from that which was accustomed to gather at the Palace. It seemed a little better dressed, a bit more dignified, more familiar with the internal mysteries of motor cars. In the first place, it is self-evident that anyone willing to make the journey to the Bronx in bitterly cold weather must be genuinely interested in automobiles and not actuated merely by curiosity.

### Salesmen Grow Enthusiastic

As the day wore on the salesmen at the different displays became more and more enthusiastic. All their apathy had vanished. They were convinced it was going to be the greatest "buying" show in the history of the trade in New York. Almost everyone with whom they talked appeared to be a potential prospect. They were called upon to answer few foolish questions but many intelligent ones. It was sad but true that a good many of the visitors appeared to know fully as much about motor cars as the men who were trying to sell them.

The intricacies of four wheel brakes appeared to be particularly puzzling to the men "on the floor" and this was a subject in which the public was especially interested. It was an intelligent interest, too, and more than once a salesmen had to admit, sheepishly, that a prospect knew more about them than he did.

This show evidences conclusively that if there are any sales managers who still cling to the notion that prospective buyers feel little interest in the mechanics of a car, they are laboring under a sad delusion. Every stripped chassis, even of lines which are not particularly big sellers, was surrounded by a crowd and they knew what made the wheels go 'round. It is not surprising, however, that with 15,250,000 Americans owning motor vehicles they should have become motor wise.

### Suburbs Supply Many Visitors

Reverting again to the characteristics of the crowd, the number of persons coming from places other than New York was really surprising. They came from Connecticut towns all the way to Bridgeport, from Yonkers, White Plains, New Rochelle and other places in Westchester, and from all the cities down to the middle of New Jersey, as well as every borough of the metropolis and the whole length of Long Island. Many of them drove their own cars which seemed to make it certain that estimates of a big replacement business have not been based on false premises. Close observers noticed that individual visitors stuck pretty close to cars in about the same price class, indicating that they had rather definite notions about how much they expected to pay. Women in expensive furs climbed in and out of expensive limousines in about the same price class and one gentleman with picturesque whiskers was observed easing himself in and out of all the models in the "under $1,000 class."

It has become an adage of the industry that the success of the New York show from the point of view of actual interest is a fairly accurate barometer with which to gage sales for the coming year in all parts of the country. If that is true, little alarm need be felt about demand in the immediate future.

For the first time since 1920 at least, the thousands of representatives of all branches of the industry who have come to New York for show week, can devote themselves without hesitation to problems of immediate concern. They know rather definitely what to expect.

Three years ago the industry was groggy from hammer blows of adversity and each manufacturer wanted to know what all his brothers thought about the prospects for the future. The next two years price considerations made up a topic of absorbing interest, for reductions were being made with bewildering frequency.

Now manufacturers have no such worries. Prices have become stabilized and the same is true, to greater or less degree, of other important manufacturing factors. The greatest selling year in history has closed and sales in al-

most equal volume seem assured for the next six months, at least.

There is no disposition to disregard caution, however, and push production blindly. Several manufacturers asserted that their output would be governed exclusively by demand and that they proposed to prepare themselves to meet only the spring requirements of their dealers.

No one is blinking the problems attendant upon a period of general business stabilization with the keen competition it will bring. Prices are as low as they can be made and still leave a safe margin of profit even with large volume. Price, therefore, is a competitive consideration which can be largely disregarded and sales appeals must be based on qualities of comfort, dependability and low operating costs which are built into the vehicles themselves. The cars on display demonstrate that unusual emphasis has been placed upon these factors.

One proof of the solidity of the industry is found in the fact that surprisingly few "lame ducks" have exhibits this year, in striking contrast to the situation in 1923 when it was possible to point out car after car which would be absent when the roll was called in 1924. This year there are a scant half dozen makes likely to pass out of the picture in the next twelve months.

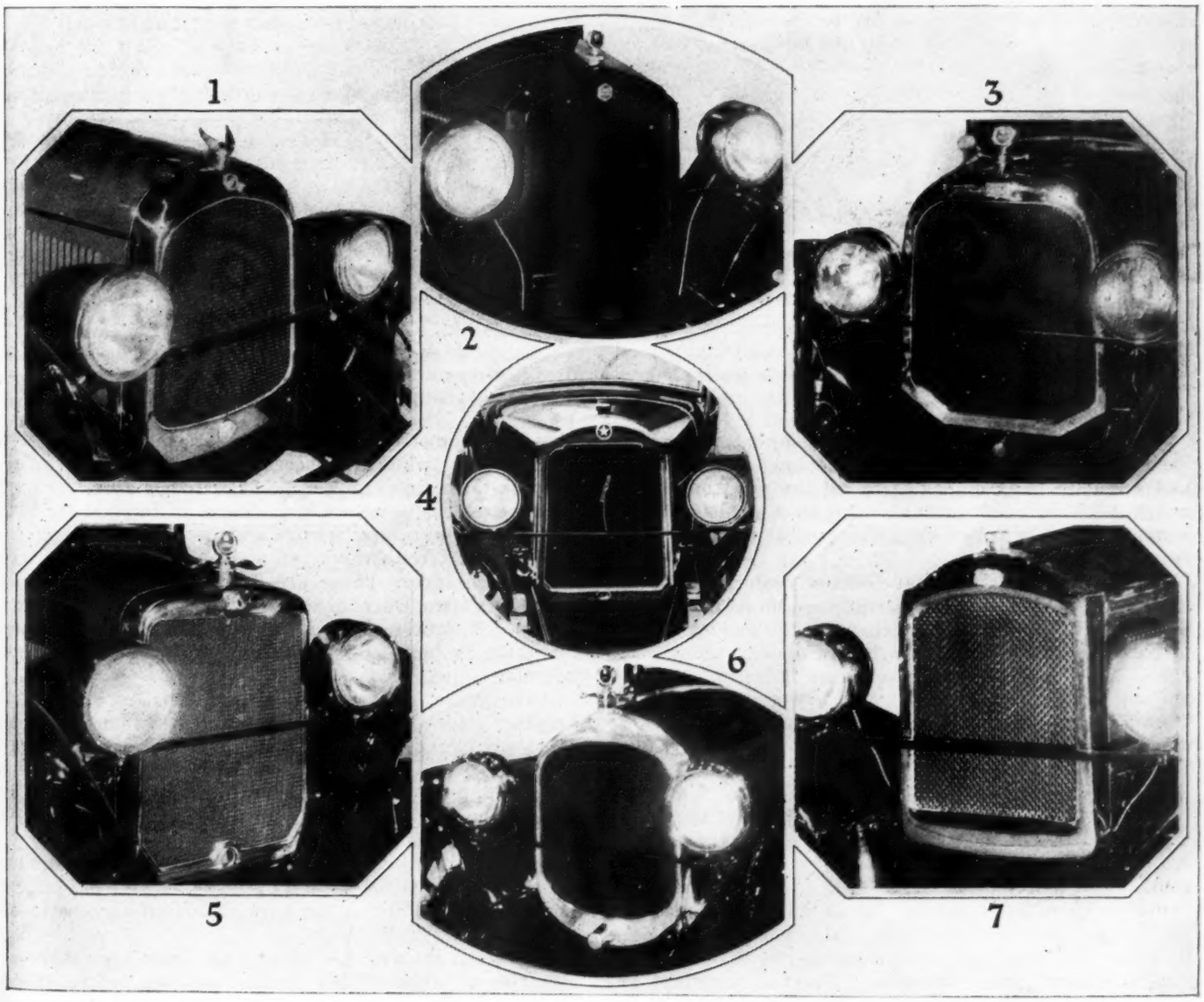
For these reasons the industry is interested in greater degree than at any time in recent years in the show merely as a show. It has been somewhat skeptical of the success which would attend the experiment of taking it so far into the Bronx but the wisdom of the venture already has been demonstrated.

As an example of this interest, Alfred H. Swayne, vice-president of General Motors, was "among those present" Saturday evening. He was deeply impressed at the size of the crowd and the beauty of the spectacle. He admitted he had been somewhat skeptical about the number of persons who would ride all the way to the Bronx to see it.

In one of the aisles he met Alfred Reeves, general manager of the National Automobile Chamber of Commerce, exuding good cheer, and stopped to tell him about it.

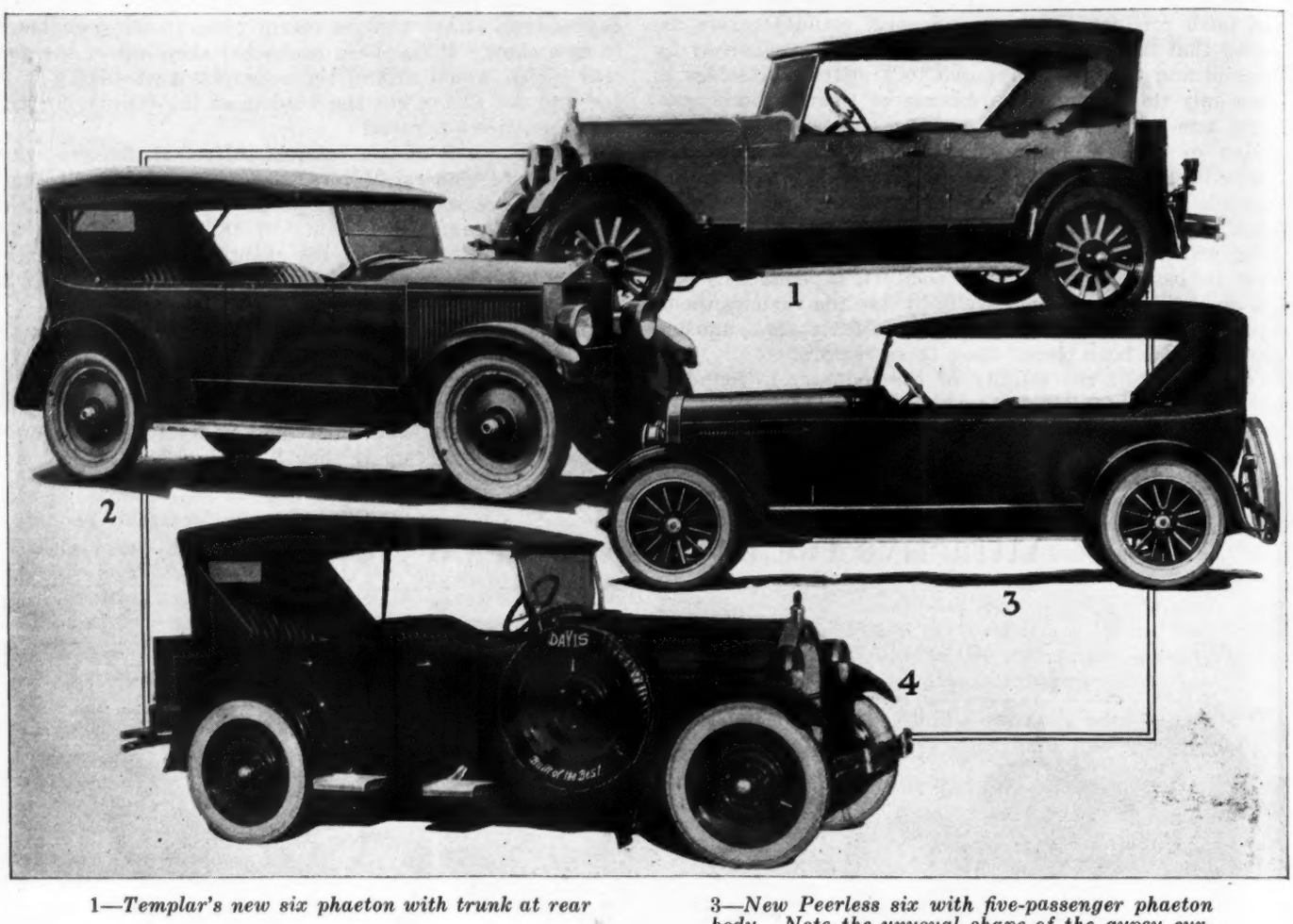
"I didn't think they'd take that long ride in the subway," Mr. Swayne said, "but they evidently will, although I wouldn't blame 'em if they didn't. I thought I'd find out for myself just how far it was so I tried it too.

# Attractive Radiators Appear on New Cars




1—*Chrysler*
2—*Essex*
3—*Chandler*
4—*Star*
5—*Rickenbacker*
6—*Templar*
7—*Gray*

# Open Models Show Trim Body Lines




*1—Templar's new six phaeton with trunk at rear*

*2—Latest edition of the Moon six with phaeton body painted in marine blue with white line striping*

*3—New Peerless six with five-passenger phaeton body. Note the unusual shape of the gypsy curtain where it joins the body*

*4—Davis "Mountaineer" phaeton, a new model with separate steps. Trunk is fitted at rear and tire carried at side*

"It's a long ride, too," he added somewhat mournfully, "and the cars are cold and the trains don't run very often and I had to hang onto a strap all the way, but it was worth it. They won't grumble after they get here for it's a wonderful show. I'm simply amazed at the size of the crowd."

It goes without saying that flocks of dealers from every State east of the Mississippi will see the show before it ends, and it is for them more than for the incidental sales to New Yorkers that manufacturers display their wares here. New York is the Mecca of the industry this week and all its hotels are crowded, both big and little.

As a dealer convention, if nothing else, most makers regard the show as worth all it costs, for interest in dealers never was keener than today.

One of the most important developments of the week, in fact, is the cumulative evidence that manufacturers are determined to establish closer relations with their retailers. They have a clear conception of the problems which confront dealers and an ardent desire to help them make money. There is a strong disposition to equalize the profits of distributors and dealers. As a consequence flat discounts are becoming more common and direct factory contracts much more numerous. Several important announcements in this connection are expected at dealer dinners and luncheons which will be held during the week.

Verily, the show's the thing. This year it has brought a genuine convention of the industry and the finest display of automotive products ever assembled in an ideal setting. But while the success of the venture as an exposition takes first rank in point of importance, the products themselves possess a high degree of interest for manufacturers, engineers, service and production managers.

Nine new front-wheel brake installations make their first appearance. These are Jordan, Columbia, Barley, Wills-St. Claire, Durant, Star, Flint, Anderson and Pierce-Arrow. The first four of these are using the Lockheed hydraulic system, while the latter five have mechanically operated units.

An increase in number of moderate priced closed jobs, brighter colors for stock models, and a return to woolen fabrics, especially broadcloth, for interior trimming are the chief developments in bodies. One-piece windshields are gaining in favor and many cars are providing increased luggage capacity. Windshield wings are used extensively, especially on sport models.

Interior trim in both open and closed jobs is confined almost entirely to blacks, dark grays and browns, indicating a definite effort on the part of body designers to obtain maximum utility value.

Nearly all makers are putting on their cars more accessories as standard equipment than ever before, bumpers, spot lights, and similar units being included frequently in the list price of the car.

Fewer accessory exhibits are in evidence than at the 1923 show but the number still is large.

# Distinct Progress Shown in Engine Design

***Greater output per cubic inch of piston displacement secured. Power plants are superior to those of a year ago. Larger bearing areas and lighter stresses have increased durability.***

By A. Ludlow Clayden

GREATER output per cubic inch of piston displacement characterizes the 1924 engines exhibited at the New York show. There have been no radical developments during the past year, but there has been a general cashing in on knowledge gained in previous years, so that it can be said in general that the engine of today shows a marked advance over the product of a year ago.

Contributing to this advance are such factors as more uniform output per cylinder, less loss through vibration, higher mean effective pressure, in some cases larger valves and a decrease in the weight of the reciprocating parts. In fact, one of the most interesting results of improvements has been the checking of the rapid trend toward the valve-in-head motor because of the greatly improved output from the L-head types.

The new high-turbulence type of combustion chamber is actually resulting in higher mean effective pressures. The increased rapidity of combustion, or, to express it in another way, the reduced time required for total combustion, has resulted in materially advancing the peak of the expansion curve. In the new Chrysler car the clearance over the piston tapers down from a considerable dome on the valve side to only 0.05 in. on the side opposite the valves. The new Oakland also uses the domed combustion chamber section with satisfactory results. Mean effective pressures of 100 lb. per sq. in. are becoming common in passenger car practice, and the high-turbulence combustion chamber is responsible for this in no small degree. Nearly every new engine brought out during the past year has had this feature included in its design.

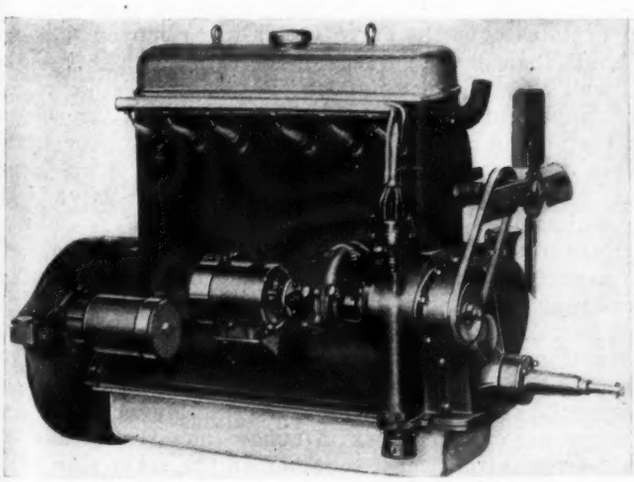
Combustion chambers not only have been shaped to produce high turbulence, but also have been designed and manufactured to give the greatest possible uniformity. Uniformity of output is being recognized as of the greatest importance. Not only must the combustion chamber be manufactured carefully, so that the compression in each cylinder will be exactly the same, but the charge drawn into each cylinder must be uniform. It is self-evident that all efforts for uniform output will be set at naught if the charge per cylinder is not uniform. In other words, distribution, which has always been recognized as important, but which nevertheless has been to some extent neglected in practice, really has been given great consideration in the new designs.

## Uniform Distribution Sought

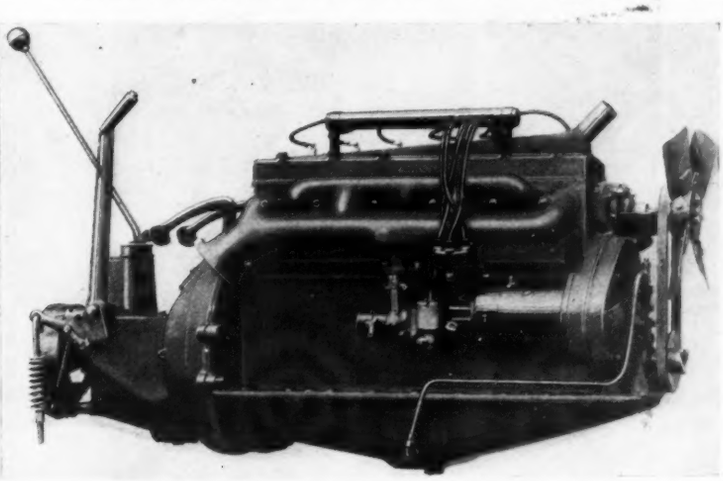
In all the new cars a real effort has been made to make the passages uniform between the carbureter and the cylinder. Instead of easy bends and curves in the manifold, which tend to allow the globules in the mixture to segregate and deposit on the walls, square sections and abrupt turns are being used to agitate the mixture and thus to keep the fuel globules in suspension. Turbulence in the manifold is regarded as important, just as it is in the combustion chamber, but for a different reason. In the manifold it is to keep the charge in suspension, while in the combustion chamber it is to increase the rapidity of combustion.

Larger valves contribute toward the higher output per cylinder. On the Buick the abandonment of the cages on the six and the placing of the valves directly in the cylinders have permitted much larger valves. These have resulted in an increase of horsepower which the manufacturers claim to be 50 per cent higher than that of the 1923 engine.

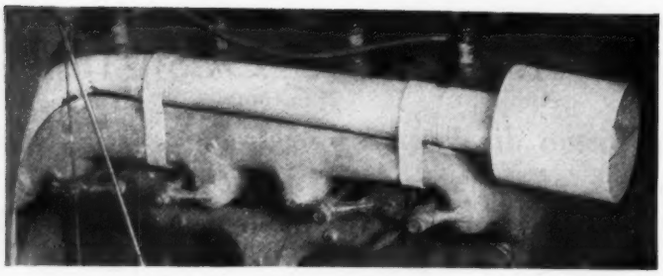
In studying the efforts made to secure uniform output per cylinder, the arrangement of the water passages should not be overlooked. One of the characteristics of good design is the provision made to avoid distortion after the engine reaches uniform running temperature. If a cylinder expands into an egg shape because it is much hotter on one side than another, it is going to cause



*McFarlan six showing complete inclosure and clean external appearance*



*New Olds six showing combined intake and exhaust manifold and location of pump on fan shaft*



*Rickenbacker showing installation of air cleaner*

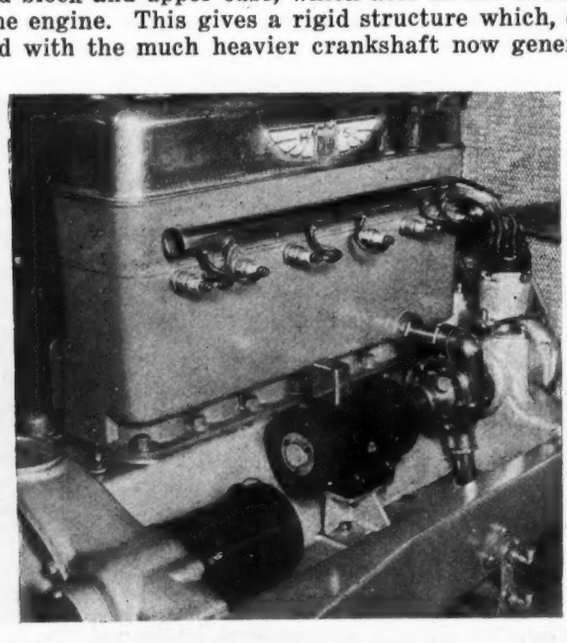
rapid piston wear and oil pumping, and consequently reduced output. The majority of the newer engines have water all around each of the cylinders and exhaust valve seats, and plenty of water over the combustion chamber. The water passages between the block and the detachable head are ample, thus eliminating the troubles which were common in earlier types of detachable head engines.

## Trend Toward 6-Cylinder Engines

The trend toward the six-cylinder engine in the lower-price fields is very noticeable. One point of interest is the increase in favor of the four-port six. The three-port type is a little cheaper to manufacture, but the distribution in the four-port six is much simpler, which accounts to a large extent for its adoption.

Aluminum pistons are holding their own, a fair share of the new cars, including the Essex and Chrysler, using them. These two very late models have adopted them after practical trials. The old Essex used them, and the experience with the Maxwell proved satisfactory enough to cause their adoption on the Chrysler. The drop forged aluminum connecting rods, of which the industry has heard so much, are now standard equipment on the Hupmobile as well as the Franklin. More care in balance of the reciprocating parts has been found desirable by many designers. Marmon now holds the difference in weight of the reciprocating assemblies for each cylinder to ⅛ oz.

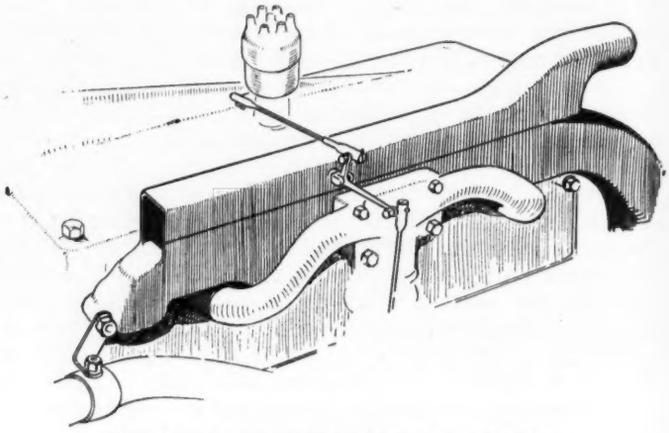
The seven-bearing six and the five-bearing four are on the increase. The bearings in these engines generally are supported by bridges cast integrally with the combined block and upper case, which acts as the backbone of the engine. This gives a rigid structure which, combined with the much heavier crankshaft now generally employed, has helped materially to eliminate vibration. Counterweights on the crankshaft, regardless of the number of cylinders, also have contributed to smoothness in such new engines as the Stutz, Hupmobile and Cadillac, with six, four and eight cylinders.



*H. C. S. shows another good example of clean external appearance*

One of the most interesting crankshafts of the year is that employed on the new Cadillac, because it makes the eight as smooth as the six, removing the characteristic unbalance of this type. This shaft is, of course, very old in theory and its features were fully analyzed in AUTOMOTIVE INDUSTRIES in February, 1915. Cadillac, however, has the honor of first actually adopting it.

Pressure feed lubrication is being developed to greater completeness. Lubrication of the rocker shaft on overhead valve engines is now generally included in the pressure system. It has been demonstrated that an owner rarely will use a hand oiler on the overhead valve action and it was obviously necessary to make the lubrication of these parts just as automatic as that of the internal parts of the engine. Usually a pressure lead is brought up to the hollow rocker shaft, which is drilled at the rocker bearings. The rocker arms are also drilled, permitting the oil to flow to the points of contact with the pushrods. The oil then returns to the crankcase, in some cases through the drilled push rod and in others



*Car heater cast with exhaust manifold on Rickenbacker*

down the outside of the pushrod. On the small Falls engine the rod is drilled and the oil passes back to the cam surface.

The accessibility of the valve action has been noticeably improved. On the new Stutz, for instance, the camshaft is higher in the case than usual, so that when the coverplates over the valve action are removed it is possible to inspect the surface of the cams. On this engine, as well as on all the new engines, it is possible to take the tappet guide brackets out in assemblies from the side of the engine. This is a great improvement over former types of construction where, in some cases, it was necessary to take off the entire block to renew the valve tappet guide bushings.

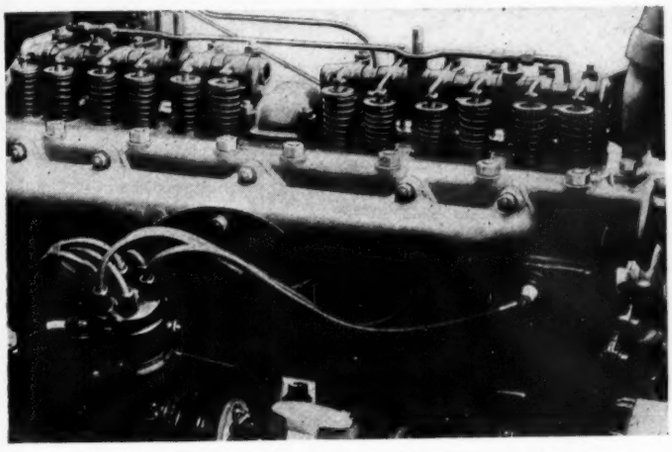
Carburetion and control of the heat applied to assist in vaporizing the mixture has come in for some revision this year. Buick and others who have brought out new engines during the past twelve months have made compensation for different climatic conditions due to geographic location or the seasons of the year. Hudson has revised its intake manifold and no longer draws the charge across the block. It now has the intake and exhaust manifolds cast together on the right side of the engine. This does away with the hot-air pipe which used to pass over the head of the cylinder and gives the engine a much cleaner appearance.

On the Rickenbacker the car heater is cast with the exhaust manifold. It is simply a long, narrow box, placed on top of the exhaust and open at both ends. The air stream enters at the front end and passes through the box, where it is heated by the exhaust, the warm current of air then entering the car.

Air cleaners are beginning to make their appearance in greater numbers. The Chrysler is fitted with the United device, which is a centrifugal fan type. This same cleaner is on the Franklin, Elgin and Gardner cars. Rickenbacker continues the use of its cleaner, although the mounting is a little different than formerly, on account of the changed manifold arrangement. There is a marked interest in the cleaners about the show and it would not be surprising to learn of further adoptions.

The Chrysler has an oil filter in addition to the cleaner. With this it is claimed that there is no necessity for changing oil winter or summer. Test cars are said to have gone 25,000 miles without draining the crankcase and oil is on exhibition which is claimed to have been taken from the case which maintains its original lubricating qualities after 22,000 miles.

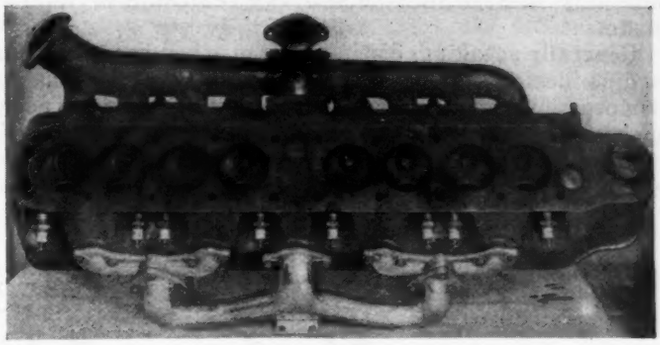
There is a noticeable change in practice in the mounting of the waterpump. The style of mounting used on the Packard single six, where the pump housing is located directly in the front end of the block with the pump driven by the fan shaft, is being favored. On the Packard six the pump has been lowered to some extent, so that there is no danger of the water level dropping below the pump. Better fan belts, such as the circular section cored rubber belt, are noticeable.



*Cleveland rocker shaft lubrication on a moderate priced six*

There are a great many interesting minor design details scattered about the show. The small spring mounting on the front end of the Maxwell engine is an example. The front of the engine, instead of resting on a trunnion bearing or some other form of fixed support, sets on a small leaf spring. This spring is held at its center by a supporting lug on the timing case cover and the open ends of the spring rest on the supporting frame, leaving the front end of the engine free to oscillate vertically. This acts as a vibration damper and prevents many periodic vibrations being transmitted to the frame. The period of the spring does not tune with normal engine vibrations and consequently acts as a dampener.

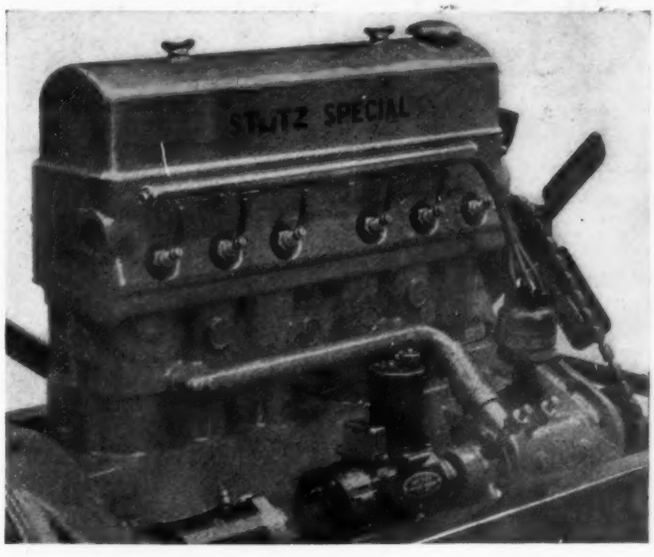
Just opposite to the Maxwell practice is the new mounting employed on the Essex. The front end of this engine is supported on a plate cross-member which extends across the front of the engine from one side rail to the other. The engine is rigidly fastened to this plate and the plate in turn is rigidly fastened to the side-members. In connection with this steel plate on the Essex, it is interesting to note that the flywheel is simply a circular disk of the same material cut from a ⅝-in. plate, the teeth for the starter gear being cut directly in the periphery.



*Duesenberg eight-in-line showing manifolds and interior combustion chambers*

The use of a steel plate cross-member for an engine support is not confined to Essex. Chrysler employs it in a different way at the rear of the engine. In this latter case it is used not only as an engine support, but also as a means of permitting the engine to be lifted from the chassis independently of the clutch and transmission gearbox in spite of unit powerplant construction. The cross-member extends across the frame and is in the form of a banjo with the clutch housing in the banjo opening. The engine is bolted to the front side of the plate and the clutch and gearbox assembly to the rear, thus bringing the units together as a unit powerplant, but at the same time preserving the independence of the units so far as repairs are concerned.

A word should be spoken in commendation of the general cleaning up of the powerplant. Cleaner blocks, with better inclosure of parts which disturb the eye, are practically universal. The growing practice of putting the distributor drive at the center of the engine, with a vertical shaft terminating at the lower end in the oil pump, has helped to clean up the wiring. Better arrangement of the accessory drive through shifting the waterpump to the fanshaft or through better grouping of the units also has helped in cleaning the exterior and has made the units themselves more accessible. An improvement on cars using chain front end drive is the ability to remove the generator or other units on the




*Close-up of the latest model Stutz six*

auxiliary shaft without disturbing the chain or its adjustment.

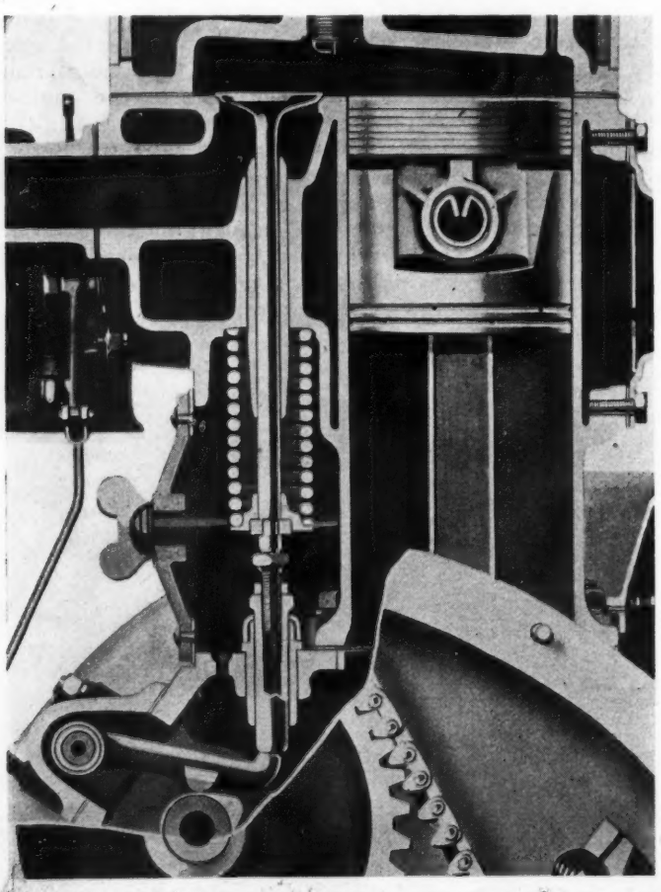
Generally speaking, distinct progress has been made in engine design. Higher outputs without unreasonable compression ratios have been secured by a combination of better manifolding or distribution, better combustion chamber shapes, reduced frictional horsepower, better balance, lighter reciprocating parts, larger valves, and a wealth of small refinements. The engines are more sightly because of the cleaning up of the exterior. They are more accessible because all designers now bear this factor in mind at the time the original design is made. Finally, engines are much more durable, because of greater bearing areas, the lighter stresses, and better materials. Thus 1923 truly may be recorded as a year of progress in engine design.

# Four-Wheel Brakes Are Most Striking Mechanical Feature of Show

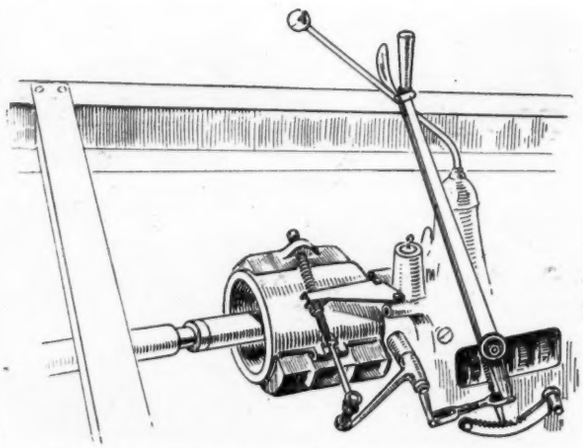
***Standard equipment on 44 models and optional on 37. Only two a year ago. Hydraulically operated systems strongly represented. New braking methods affect front axles. Clutch improvements.***

By P. M. Heldt

IF a history of American automobile development ever is written, the year 1923 will stand out prominently because of the widespread adoption of two innovations—four-wheel brakes and balloon tires. There has been a regular landslide toward four-wheel brakes, and a census taken at the show disclosed that they are now fitted as standard equipment on forty-four models and optionally as extras on thirty-seven, while a year ago only two American makes, the Duesenberg and Rickenbacker, were equipped with such brakes. In the Rickenbacker the brakes were optional until this year, and it is understood that in the New York territory about 60 per cent of the purchasers called for them, which indicates a considerable degree of public appreciation.



*Sectional view of Packard single six, a good example of a well-cooled valve*



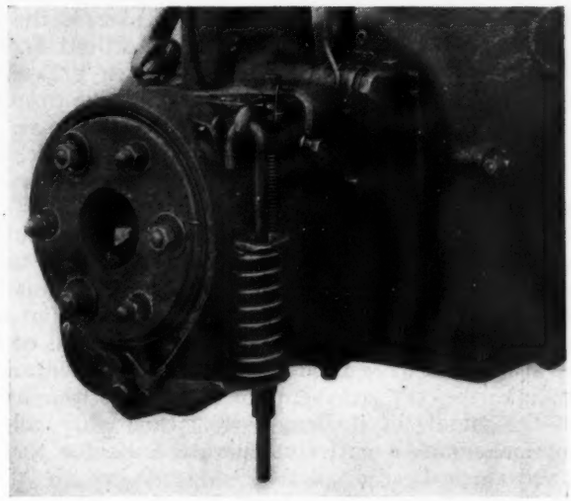
*Sketch of Wills Ste. Claire transmission brake*

Although balloon tires are one of the important feature factors of the show and are found on at least one car of a large percentage of the makes exhibited, considerable difference of opinion still exists as to what constitutes a balloon tire. Talk is heard of one-quarter, semi, three-quarter and full balloon tires, but beyond that it is difficult to go.

Some of the new types are four-ply and some six-ply. Some are marked in the nominal sizes approved by the executive committee of the Tire Division of the Rubber Association, and are presumed to agree with their recommendations, while others depart from these "standards." There are, also, some tires mounted on 20-in. wheels which are not claimed to be balloon type.

Naturally, inflation pressures for the same nominal sizes vary. Some of the six-ply tires, at least, require inflation pressures materially greater than four-ply units. Fender and other clearances vary also, and in some cases seem inadequate. This makes it appear that some makers who have fitted balloon tires for show purposes are not prepared as yet to deliver cars with such equipment.

As was to be expected, there are few indications as yet that balloon tires have had any pronounced effect upon chassis design. Another year probably will see more developments in this direction.



*Oldsmobile transmission brake embodying punched and machine-bent parts*

The brakes adopted by the various manufacturers have been so fully described in these columns that there is little that can be added here. This development came so suddenly that many companies which otherwise probably would have worked out their own designs found it expedient to adopt some system which obviated the need for experimenting.

Hydraulically operated brakes, which probably occasion the least difficulty in adapting them to existing chassis designs, are very strongly represented at the show, but their applications vary considerably as to arrangement of the master cylinder, method of carrying the oil leads to the brakes and the type of brake used, whether internal or external.

One problem which has not yet found a definite solution is that relating to the emergency brake in conjunction with four-wheel service brakes. The simplest but hardly the most commendable plan consists in using the rear wheel service brakes also as emergency brakes by operating them alternately by pedal and hand lever, and it is rather remarkable that this somewhat primitive system has been and is being used on the most expensive cars. Another solution of the problem consists in providing double brakes on the rear wheels, while the majority of makers provide a transmission brake for emergency purposes. As a result of the advent of four-wheel brakes, transmission brakes have greatly increased in number the past year, but as they are used as emergency brakes, the chief advantage of a transmission brake, ease of operation, is not fully realized.

### Designs Improved

In the past the transmission brakes often have been of rather crude design, and laudable efforts to improve this component are noticeable at the show. On the Maxwell car the diameter of this brake has been increased, and on the Wills Sainte Claire, which has a transmission brake for the first time this year, a very wide drum is used. It appears that in some cases of assembled cars the transmission brake is furnished by the manufacturer of the gearset, which is not at all surprising because the brake must be anchored on the gearset and the operating linkage also must be supported on it. Moreover, the loads on the tailshaft bearing are materially affected by a transmission brake, and provision for the brake, therefore, must be made in the design of the gearbox.

There are two general methods of operating transmission brakes, which are always of the external type. One makes use of a link and bell crank mechanism similar to that used with rear wheel external brakes, while the other makes use of cams. As the brake lever always is close to the transmission brake, the linkage is usually very simple, and in one case, that of the Gray, it is entirely eliminated, the cams contracting the band on the drum being mounted directly on the shaft of the brake lever. The limited range of motion of the shaft is in this case compensated for by making the cam faces comparatively steep.

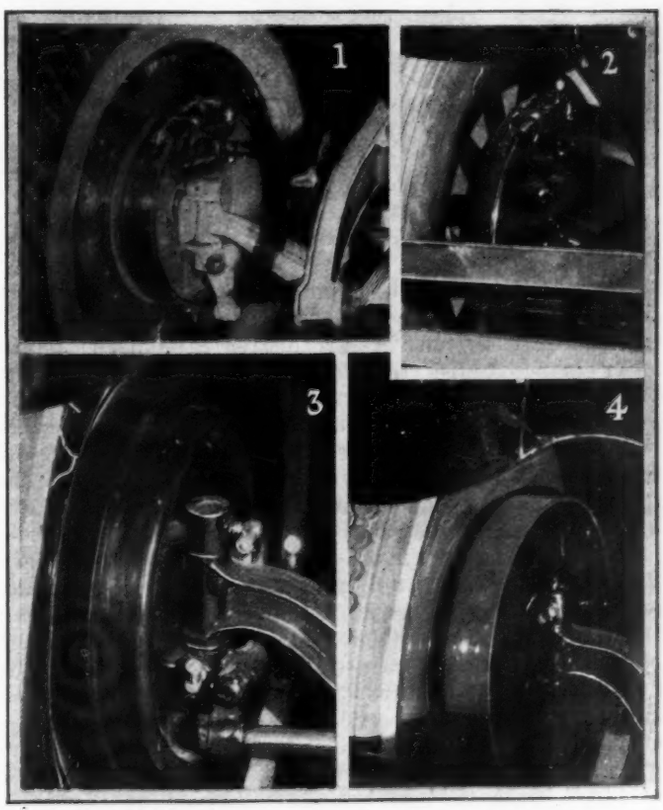
The new transmission brake on the Wills is of the block type, the metal blocks being ribbed on the outside and lined with friction material. The arrangement of the operating linkage is shown in the sketch reproduced herewith.

### New Transmission Brakes

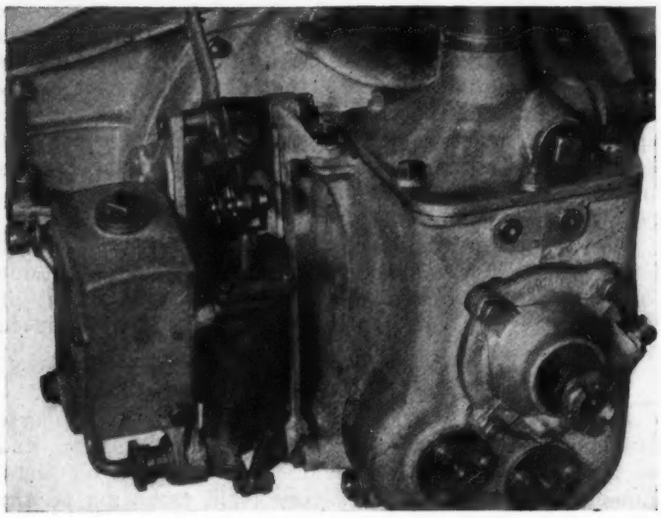
All transmission brakes are offset from the supports of their anchorage and of the operating levers, etc., and as a result considerable strains are imposed on these supports. This necessitates very rigid mounting on the gearcase, a fact which sometimes was not given due consideration in earlier designs, but now seems to be thoroughly appreciated. Whether the load on the rear bearing of the gearset due to the application of the transmission brake is properly considered in each case is questionable, as this load increases rapidly with the overhang, or the distance between the center of the bearing and the center of the brake, which in some cases seems to be inordinately large.

Another problem connected with four-wheel brake design concerning which there is as yet considerable difference of opinion is that of equalization. One point all engineers who have given the subject any thought seem to be agreed upon, and that is that it must be practically impossible to lock the brakes on the front wheels under any conditions.

## New Front Wheel Brakes




*Installations announced for the first time included: 1—Columbia, with Lockheed hydraulic brakes. 2—Jordan, also Lockheed. 3—Durant. 4—Flint*



*Toggle-operated master cylinder and reserve tank of hydraulic brakes on Duesenberg*

There are two general methods of providing against this possibility. One consists in so designing the brake linkage that the deflection of the steering wheels has a tendency to loosen either one or both of the front brakes; the other in making the leverage of the front brakes such that the driver cannot possibly exert enough pressure on the pedal to lock them while on ground on which the rubber tires have a fair degree of adherence. In order to accomplish this latter end, the effort on the brake pedal is often unevenly divided between the front and the rear brakes, which can be most readily accomplished by providing a brake compensating device of the balance lever type with arms of unequal length. The term equalizer no longer fits a device of this type, and a new designation should be evolved for it.

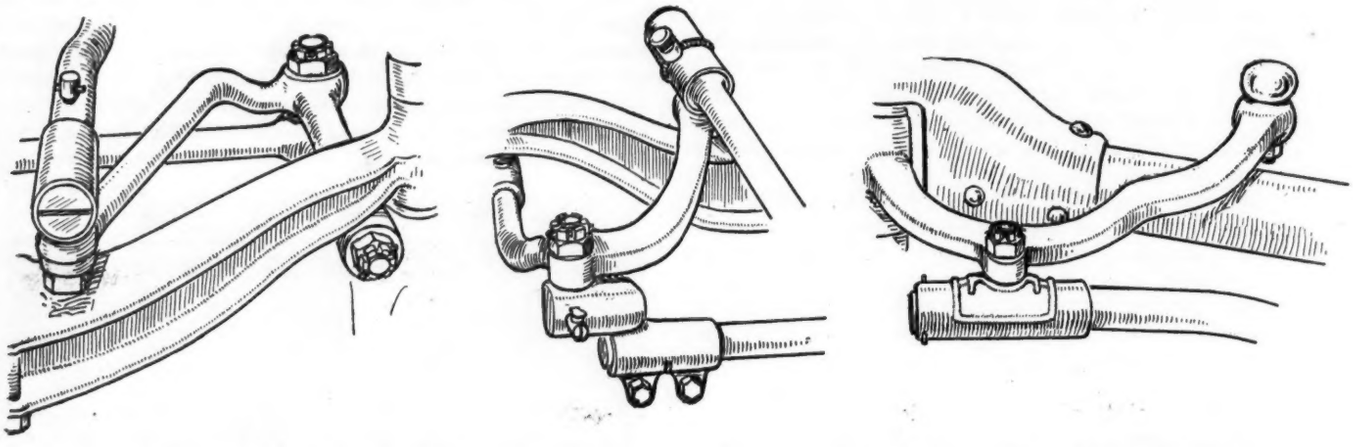
In our report of the Automobile Salon we mentioned that Panhard had given up the ribbon type of brake connection which he used for some years. In this country the Star seems to have had equally unsatisfactory experience with it, for in the latest model, the ribbons are replaced by the usual rods. Rods also are not entirely satisfactory, especially if of unusual length, as they have a tendency to vibrate strongly at certain engine speeds. This vibration is likely to lead to their eventual breakage. In one car observed at the show this tendency seems to have been counteracted by welding a vane to the rod at about the middle of its length.

Another part of the car which has been greatly affected by the adoption of four-wheel brakes is the front axle. Steering knuckles of the reverse Elliott type are used very largely in connection with such brakes, and undoubtedly a large number of new front axle drop forging dies have had to be made during the past year. For the formerly more common Elliott type of knuckle the design of the knuckle arms had been worked out in a rather neat and generally satisfactory way.

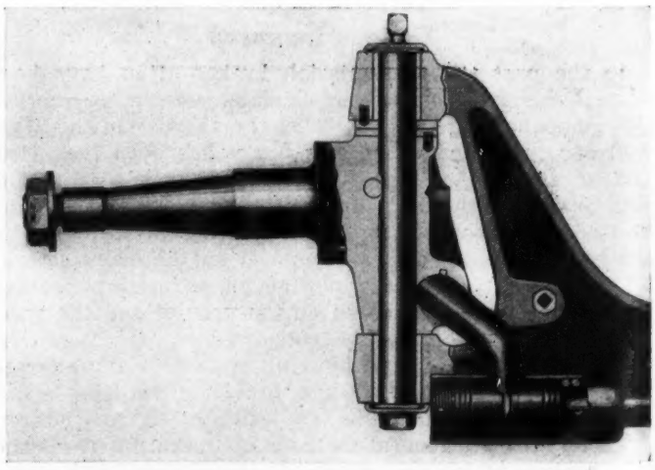
The reverse Elliott knuckle was a rarity in American practice previous to this year, and the design of knuckle arms for it presented our designers with a relatively new problem, some more or less happy solutions of which are illustrated by the sketches herewith. In all of these cases a single arm is used for both the tie rod and the drag link, the tie rod being connected to the arm at about the middle of its length by means of a ball stud. Somet makers used entirely separate arms for the drag link and tie rod.

Ball and socket joints have largely replaced clevis joints for the tie rod connections. Where the steering pivots are strongly inclined, as in most cars having front wheel brakes, the ends of the knuckle arms on opposite sides of the car do not move in the same plane, and some form of universal connection is therefore essential, but ball joints have been adopted even in cases where the steering pivots are vertical, as in the Maxwell.

The ball joints used for the tie rod are of the same design as those used for the drag link; that is, the cup-shaped steel blocks between which the ball is located are under heavy spring pressure, and this eliminates any chance of rattles developing in these connections. The



*Combined knuckle arms for connection to drag link and tie rod. (Left to right, Moon, Kissel, Franklin)*

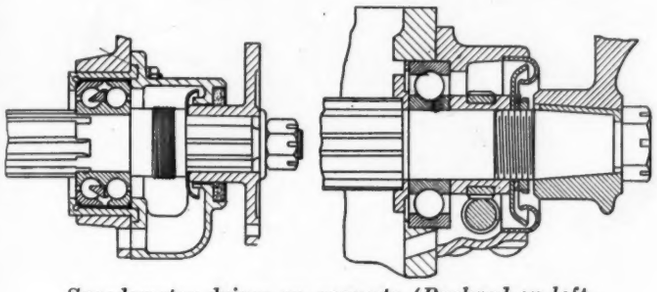


*Ball type tie rod connector on new Maxwell*

body of these ball joints, moreover, can be formed integral with the tie rod, thus eliminating the threaded joint between the rod and the connector, which has some times given trouble in the past. Finally, a ball joint of this type can be protected against dust and moisture more readily than the clevis type of joint by means of a leather boot or cover.

In some cases, evidently with a view to preventing the need for cranking the tie rod, which would reduce its stiffness, the joints are offset, that is, the portion fitting over the tie rod proper is out of line with the portion taking the ball stud. This, of course, also permits of inserting the plug backing up the spring from the inner end, making it possible to place the ball close to the outer end of the connector. Several designs of such offset connectors are shown herewith.

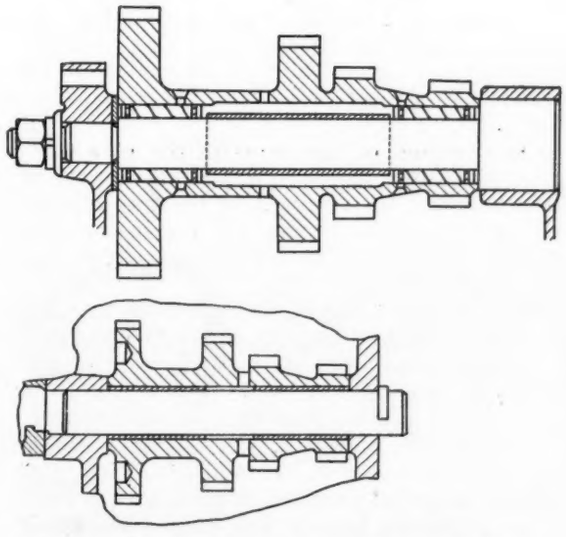
While chassis improvement has been concentrated largely on the braking system, other parts also have undergone a moderate amount of development. As regards clutches, there is a continued tendency toward the single disk type. What is perhaps the most prominent representative of this type at the present time, the Borg



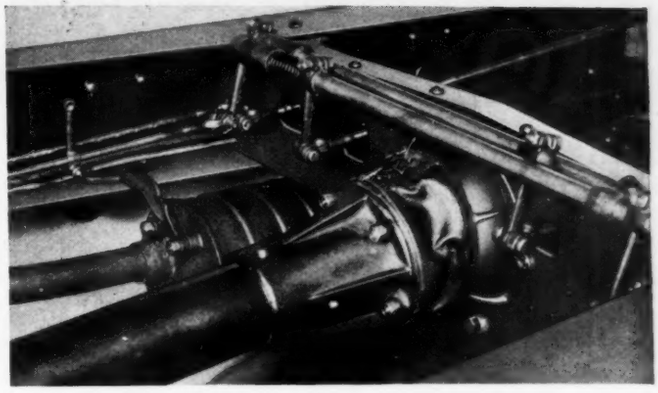
*Speedometer drives on gearsets (Packard on left, Maxwell on right)*

& Beck, has been redesigned recently, castings having been replaced by pressed steel parts to lessen the inertia of the driven member and to reduce production costs, and the clutch springs have been placed on the outside of the pressure plate where they are less subject to the heat developed when the clutch is allowed to slip.

On the Maxwell car, which has been fitted with a cone clutch up to this year, a single plate clutch has now been adopted, and Harold Wills in his Wills Sainte Claire car

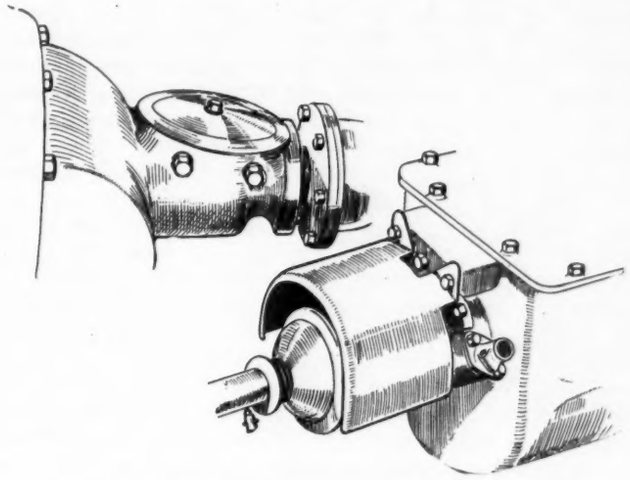


*Secondary gear assemblies rotating on stationary shaft (Packard above; Maxwell below)*



*Leather boot on spherical joint of H. C. S. propeller shaft tube*

has replaced his former multiple plate by a single plate clutch, having retained the method of lining the driven disk by means of asbestos cord woven right over the disk, which was characteristic of his former design.



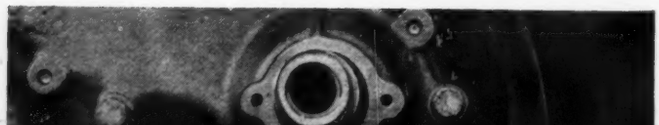
*(Left) Cover plate on Studebaker rear axle housing forward extension, facilitating bearing adjustment*
*(Right) Speedometer drive on Packard gearset; also grease shield over universal joint*

The Velie is also fitted with a new single plate clutch known as the Dooley, which is understood to be manufactured by the company itself under shop rights.

A further application of the plan of using molded asbestos disks for the driving members in multiple plate clutches is found in the Chrysler car. The driving teeth are cut directly in the asbestos disks, and the need for one set of metal disks is obviated.

Franklin has introduced a flexible member in the driven part of the clutch and claims thereby to have eliminated a somewhat objectionable vibration. An effect similar to that produced by the Lanchester vibration damper is claimed, but the relationship between the two is difficult to see, as the Lanchester device depends upon friction for its action, and there can be no friction of any consequence in the Franklin arrangement, which is more in the nature of a flexible drive. The provision of such a drive naturally would result in damping out any vibration originating at the point of contact between the driving wheels and the ground, though it seems to be the opinion of the Franklin engineers that the vibration that was eliminated had its origin in the engine.

As regards change speed gears, the three speed sliding pinion type with ball mounted shifting lever directly on



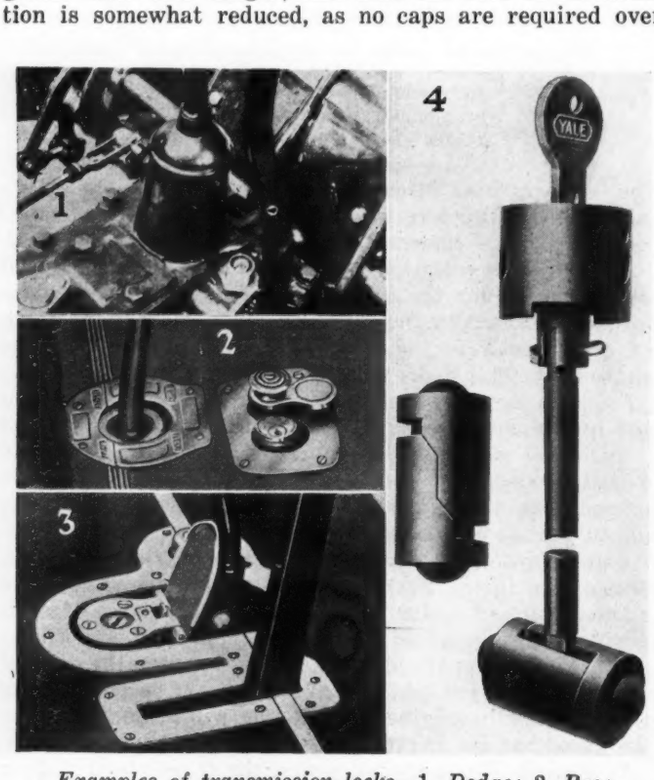
*Spring support of front end of Maxwell engine on frame*

the gear housing is used on the great majority of all cars, but a few departures from this well nigh universal practice have been made in the recent past.

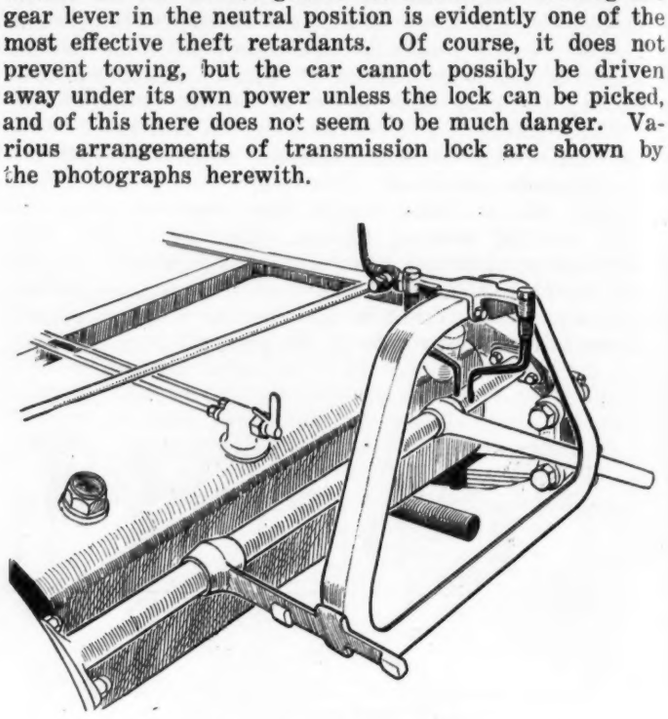
One of the most notable is the adoption of the Traffic transmission by the Chandler Motor Car Co., in which changes of gear are effected by means of a system of sliding keys instead of by sliding pinions. All of the gears, therefore, remain in mesh continuously, and changes of gear can be made positively under all conditions, it is claimed. This obviates the unpleasant clashing or grating of gear teeth, which results from unskilled handling of the gear lever, and it also makes it possible to rely on the engine for braking purposes under all conditions, while with the sliding pinion gear, if the car cannot be controlled by the regular brakes on a down grade and has attained considerable speed, it is often impossible to engage one of the lower gears, on which alone the engine develops any material retarding force.

The practice of arranging the secondary gears so as to turn on a stationary stud has come into very extensive use and is now employed even on some of the more expensive cars, as, for instance, the Packard. It would seem that this construction permits of securing a given degree of rigidity—essential to quiet operation of the gears—with less weight, and that the cost of construction is somewhat reduced, as no caps are required over the ends of the bearings to prevent the escape of lubricant from the case, and the bearings can be made of a less expensive type. Plain bronze bushings are used in low-priced cars having this feature, and flexible roller bearings in the more expensive ones.

Transmission locks and speedometer drive from the transmission are features which have gradually gained in popularity during past years and are now almost universal. A lock on the gear shift mechanism locking the gear lever in the neutral position is evidently one of the most effective theft retardants. Of course, it does not prevent towing, but the car cannot possibly be driven away under its own power unless the lock can be picked, and of this there does not seem to be much danger. Various arrangements of transmission lock are shown by the photographs herewith.




*Examples of transmission locks—1, Dodge; 2, Reo; 3, Studebaker; 4, Chandler*

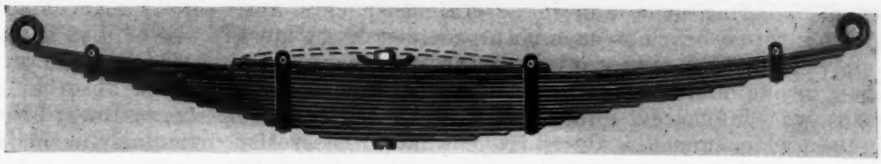


*Tire carrier on Pierce Arrow*

Driving the speedometer from the front wheels was never very satisfactory, for with exposed gears there was constant trouble after a certain period of use from mud getting into the gears, and enclosure of the gears on the steering knuckle, which was worked out in a a rather neat manner by one or two designers, involved considerable expense. At first the objection was made to the driving of the speedometer from a part connected to the drive wheels of the car that the indications would be affected by slippage of these wheels on the ground and that speed and mileage reading therefore would be inaccurate. It appears, however, that this objection is not a serious one and can probably be allowed for in the gearing of the drive to a certain extent. The usual method consists in fitting a helical gear to the tail shaft directly behind the bearing of the latter in the rear wall of the gearcase, with which meshes a driven helical gear mounted in a case bolted to the rear wall of the transmission housing. Quite frequently the case for the speedometer drive has formed integral with it the bracket for the transmission brake.

The H. C. S. car is one of the relatively few American models having a spherical joint at the forward end of the propeller shaft tube, and an excellent feature in connection with this joint is the leather boot which protects its bearing surface against road dust, as illustrated in the photograph shown herewith. In the new Packard car shields are provided over the universal joints at both ends of the propeller shaft to prevent grease from these joints being thrown against the body (see sketch).

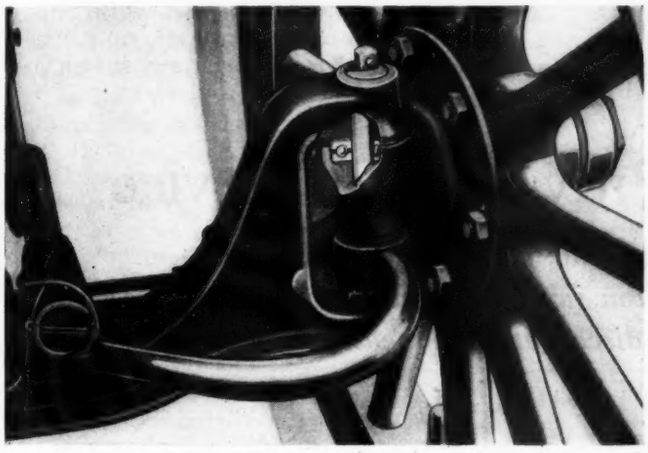
Two cars now are equipped with the Cutler-Hammer automatic mechanical gearshift, the Apperson and the



*Nash multileaf spring with reverse leaf*

Elgin. This removes the gear lever from the driver's compartment and as the emergency brake can be operated by means of a pullrod extending backward from the dash, instead of the usual hand lever, this leaves the front compartment free from obstruction by levers and hence easier to enter from either side.

A new design feature, valuable particularly from a manufacturing standpoint, is the combined shifter rod and arm used on two General Motors lines, the Oakland and Oldsmobile. These combined rods and arms are



*Ball thrust bearing in steering knuckle of Cleveland*

punched from steel plate and then mechanically bent to shape, a form of construction that is finding increased favor. Examples of other parts made in the same way are the emergency brake bracket and sector on the Oldsmobile and the brake operating lever on the same car.

A minor improvement in the rear axle of the new Buick consists in the provision of pads under which the jack can be placed. In the past, it often has been a puzzle to operators as to just where to apply the jack, especially in the case of cars having an underrunning truss, and the provision of a pad for this purpose shows thoughtfulness for the convenience of the driver.

There is undoubtedly a tendency to make frames stiffer than they have been in the past. Although our roads are being improved constantly and the strains on the frame might be expected to be lessened in consequence, this is probably more than compensated for by the higher speeds of which the newer models are capable. Tubular cross-members at both the front and rear are becoming quite common, and in addition there is often a very wide and deep cross-member at the middle with unusually large gussets. Five and even seven cross-members are not uncommon, where only a few years ago there were a good many cars having no cross-members between the bell crank and the front end of the rear springs or a point even further back. Front tubular cross-members are sometimes fastened into sockets formed integral with the front spring horns.

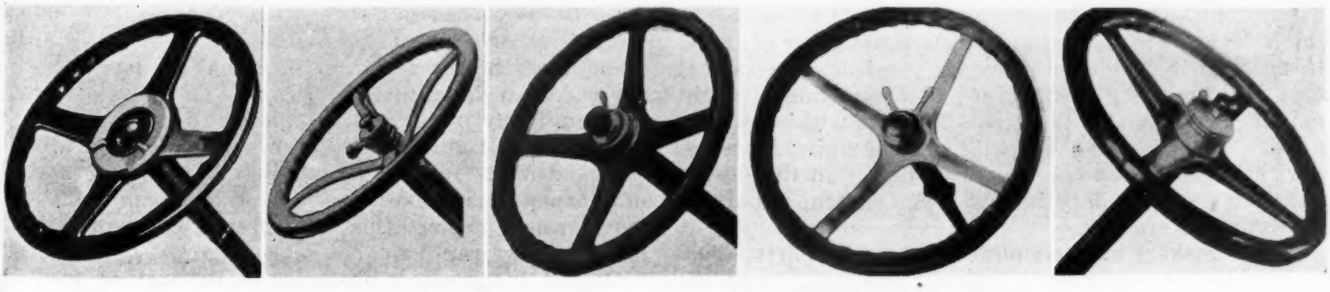
In the majority of cases where frame cross-sections have been changed they have been made deeper, while in the Oakland the depth has been reduced from 6½ to 5 in., but the stock from which the frame is made was simultaneously increased in thickness from ⅛ to 5/32 in. Evidently it was considered that for ⅛-in. stock a 6½-in. section is too deep. At just what depth it is desirable to change from one thickness of stock to the next has been a moot point and probably depends to quite an extent upon the number of cross-members employed.

A rather novel departure that has some relation to frame construction has been made by Maxwell. Instead of supporting the engine at the forward end directly upon the frame in a trunnion or spherical support, it is supported by a half elliptic spring, the ends of which rest freely upon pads extending rearward from the front frame cross-member. The object aimed at is to prevent the transmission of engine vibrations to the frame, so that they are less noticeable to the passengers. The range of engine motion relative to the frame is limited by a yoke over the spring close to its point of anchorage to the cam gear housing cover.

### Essex Frame Changed

In connection with frame design it is interesting to note that the Hudson company, which was the originator of the frame tapering uniformly from rear to front, in the latest Essex design has given up this type and reverted to the frame with parallel side members. Substantially the same advantages that characterize the tapered frame are secured by extending the rear cross-member and shackling the ends of the spring to it. While the frame sides are thus parallel, the rear springs are strongly splayed, and this no doubt helps to prevent side swaying in making turns.

Efforts have been made by the designers of quite a number of cars to reduce the power required for steering. Cadillac, for instance, has increased the gear reduction



*Most of the newer models have quite small control levers with friction locks. (Left to right: Packard, Pierce Arrow, Cadillac, Dort, Flint.)*

of the steering gear, and in several other cars anti-friction thrust bearings have been provided in the steering knuckles to reduce the friction there. At first thought one might reach the conclusion that this movement was influenced by the adoption of front-wheel brakes, which undoubtedly add somewhat to the resistance to the deflection of the steering wheels unless exact center point steering is employed, but reduction of steering effort has also been sought in cars not equipped with four-wheel brakes, as in the Cleveland, which has ball thrust bearings in the knuckles.

Adjustment and lubrication of the steering gear have also received greater attention than in the past. In several models the eccentric bushing provided for the correct meshing of the worm and wheel or worm and sector is provided with a wrench or lever arm in place on the car, by which it can be readily turned to make the adjustment, and in the Essex a liberal oil reservoir is provided on the steering gear so that when it is once filled with lubricant it requires no attention for a long time. Oil lubrication of the steering gear is, moreover, a comparatively new feature.

As regards suspensions, nothing strictly new was observed, but it was noted that a larger proportion of the cars than in previous years were fitted with some form of shock absorber or snubber. There seems to be a tendency toward the use of a large number of leaves, particularly in the front springs. Multi-leaved front springs are used on such cars as the LaFayette, Pierce Arrow and Nash. It is possible that the use of a large number of leaves increases the interleaf friction and thus tends to lessen the rebound of the springs, which makes the steering unsteady if it is excessive.

There has been a gradual change in the design of the control levers on top of the steering wheel. Originally it was customary to mount these on a sector of about half the radius as the wheel itself and hold them either by a ratchet or a friction lock on the sector. Later, several designs were brought out in which the levers were considerably smaller and were held by friction at their hubs. This design seems to have met with popular favor and has come into extensive use since. A variety of steering wheel and control designs are shown herewith.

# New Designs Make Provision for Service

***Four-wheel brakes not expected to add materially to problems of maintenance. Engine lubrication improved, but inaccessible drain plugs on many cars still discourage frequent drainage.***

By J. Willard Lord

THE casual visitor at the automobile show is interested in beauty of body lines, attractiveness, and what he asks about a car chiefly is, "How will it run?" The engineer studies the exhibits from a highly technical viewpoint, but the service man asks himself, "How are we going to repair these new creations that the factory has sent us?"

Four-wheel brakes are easily the sensation of the show, and naturally raise some question as to how much they will raise the cost of relining and adjusting brakes. As a matter of fact, it has been found that on cars using four-wheel brakes for some time, the actual expense to the owner for adjustment and replacement is not any more than on the two-wheel types, because of the fact that the braking effort is distributed over four bands and therefore each band receives less strain and wear than would ordinarily be the case.

### Service Features of New Brakes

Practically all of the makers who have adopted the four-wheel type have made adequate provision for lubrication of the newly-added wearing surfaces. Where compression grease systems are used it is necessary only to place fittings at the proper points. One criticism which might be made is that there are too many of these. On one car the added number of lubrication points is ten. By combining some of these or making a slight rearrangement it should be possible to cut this number in half. Considering the newness of the units, however, lubrication has been taken care of better in the design than has been the case in any other radical departure from current practice.

Several makers have simplified materially parts stocking problems by making a considerable number of the front and rear parts identical. In fact, on one car all four brake bands are exactly the same and need only be turned over for use on the opposite side of the car. The installation of the brakes at the front wheels does not seem to offer any obstacle in the way of taking off wheels, adjusting bearings or any other operations ordinarily performed either in the service station or by the owner himself.

Balloon tires certainly present no new problem to the service man, at least so far as inflation is concerned. The recommended pressures vary from 25 lb. for the very large tires to 40 lb. for some of the so-called semi-balloon types. In many shops where a considerable number of tires are changed, it is customary to use tire changing machines, as this speeds up the operation and offers less chance of pinching the tubes. Some of these machines probably will handle the larger size tires satisfactorily, but it is quite probable that others will not. Inasmuch as balloon tires will not be found in sufficient numbers to cause any inconvenience for a year or more to come, this is something that time will take care of, because within twelve months the older types of tire changers will doubtless need replacing anyhow.

Lubrication of the engine from the viewpoint of continuous supply of lubricant to all working parts seem to have been worked out to a point where there is little possibility of present improvement. From the service standpoint, however, engine lubrication has not progressed materially in three years. The greatest single problem today in car maintenance is to get the owner to change the oil at 500-mile intervals on account of dilution and dirt. In spite of all that has been written in newspapers, magazines, instruction books and what not, most owners neglect this vital detail; consequently the engine shows rapid wear.

One of the greatest obstacles in the way of frequent crankcase draining is the inaccessible location of the drain plug on most cars. Some few makers have pro-

**MAINTENANCE is recognized as a factor of growing importance to the car builder. Factory engineers, sales managers and general executives are studying the problem more carefully every year.**

**This story gives the thoughts of an experienced service man after examining the cars at the New York Show. He tells frankly what he believes to be the chief service trends indicated by the new designs and brings to the manufacturer a view of the 1924 models which should be of considerable value.**

**Mr. Lord is manager of the big Pierce-Arrow service station of the Harrolds Motor Co. in Long Island City and is president of the Automotive Service Association of New York.**

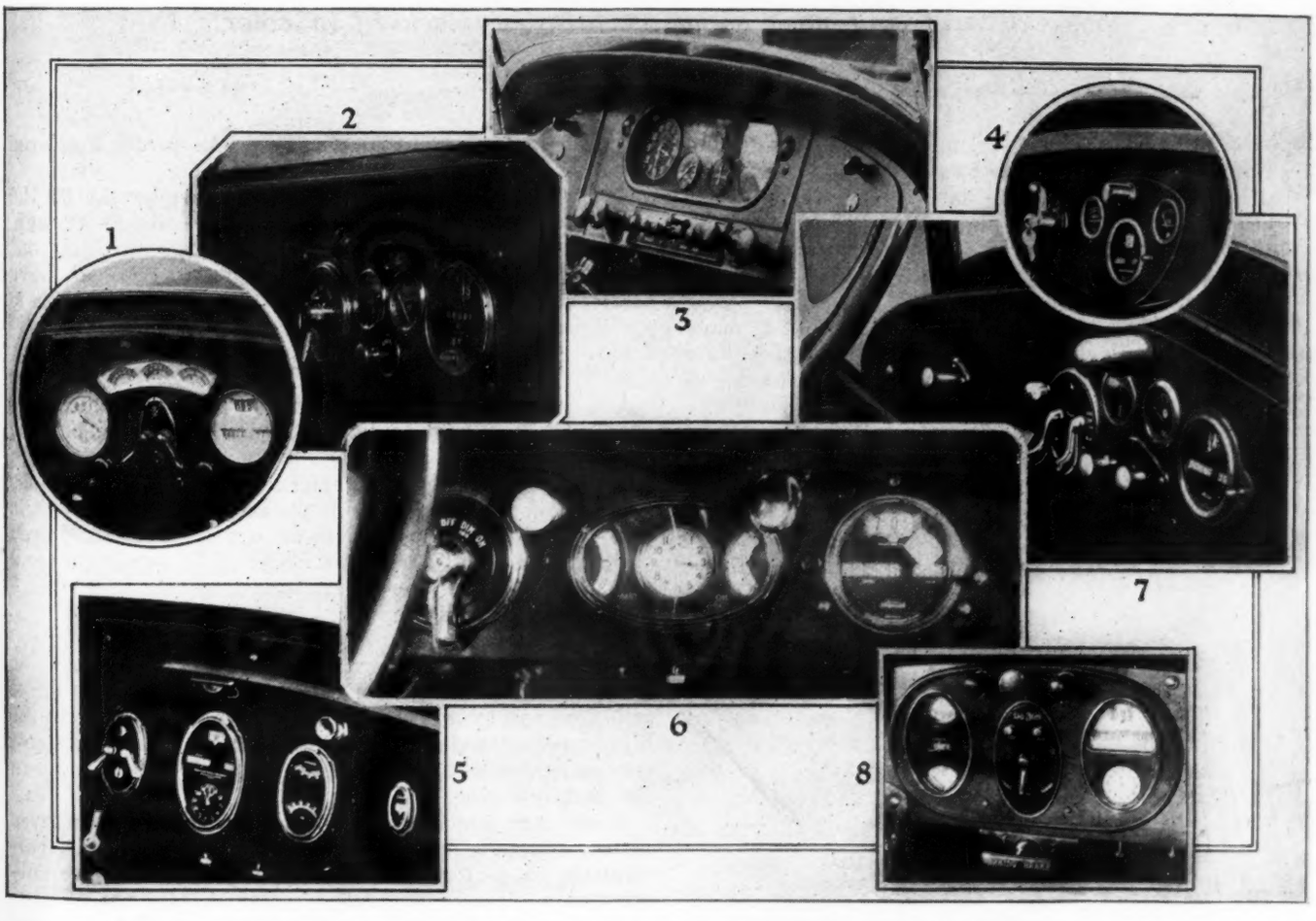
vided accessible drains which are operated from above the engine pans, but, unfortunately, these form a small minority.

One of the brand-new cars at the show, the Chrysler, has provided an oil filter on the car. This filter removes sediment and dirt from the oil continuously while the engine is running. Prominent oii engineers have proved very conclusively that dirty oil is even more of a menace than diluted oil, and this step in advance in ridding the oil of its load of abrasive should lengthen the period at which draining is necessary.

Chassis lubrication design continues to improve. Individual grease cups are very much in the minority at the present show and their place has been taken by compression grease fittings, automatic oiling systems or wick feed oilers, which require replenishing only at infrequent intervals. This very important advance in design will result in cars which will operate satisfactorily for a long period before they begin to rattle and squeak. Not only have the methods of lubrication been very much improved, but the location of the lubrication connections has been changed for the better. Several cars show spring shackles with the connection at the center, so that the lubricant has a short path and goes from the center of the shackle bolt out to the sides. Other cars have placed grease connections in more protected places so that they will not be so easily knocked off and, even more important, so that they will not be overlooked.

Practically every chassis on exhibition shows some improvement in this latter detail. Not more than three years ago a dozen cars of well-known makes had grease

## New Instrument Boards Designed for Driver's Convenience




*A neater arrangement of instrument boards is characteristic of many cars. Instruments generally are grouped, sometimes under a common glass, or balanced to avoid a one-sided appearance*

1—*Cadillac* 2—*Maxwell* 3—*Pierce-Arrow* 4—*Dodge* 5—*Packard* 6—*Willys-Knight* 7—*Essex* 8—*Elgin*

cups in such inaccessible locations on the rear end that the only possible way of getting at them was to crawl underneath the car. Practically every maker provides doors or holes through splash aprons so that the spring shackles can be easily reached. The one single exception to this seems to be the lubrication of the front end of the propeller shaft. In several cases this is taken care of automatically from the gearset, but, unfortunately, there are still a number of cars on which it is necessary either to take up the floorboards or crawl underneath the car to lubricate this point.

Dust is still a problem in connection with chassis lubrication. It is impossible to place an oil or grease connection at any point where it does not accumulate dirt. If this is not thoroughly removed before the new lubricant is put in, the dust goes right along with the lubricant, thus forming a sort of "weak" valve grinding compound. Covers over the connections probably prevent this dust injection as well as anything else.

Headlamp adjustment is at the present time a serious question. There is no question whatever but that glare can be eliminated and at the same time sufficient light can be thrown on the road for safe driving. Lenses, reflectors and bulbs can be made and are being made that will do these things. But the problem is to keep the parts in adjustment. Bulbs will get out of focus and headlamp brackets or fenders get bent and lenses have a tendency to slip around so that they are nearly upside down. It is quite noticeable that engineers have taken cognizance of these service problems and have, in most cases, provided outside adjustments. Headlamp brackets, where separate from the fenders, are in some cases made adjustable horizontally and in some cases both horizontally and vertically. Several new models on which the headlamp attachment is direct to the fenders have adjustable plates with oversize holes for the cap screws, so that there is a limited amount of headlamp adjustment possible.

Summing up the service features at the show, it might be said that service has not received quite as much attention as other features of the cars. Many makers have paid a good deal of attention to maintenance questions and many have not come to a realization of its importance yet. Engineering seems to have come to maturity, but service engineering has yet to attain its full growth.

# Low Priced Closed Cars Increase in Number

***Better looking radiators have improved frontal appearance and hood lines. Sport models still are popular. Fewer all black jobs exhibited, but most superstructures are lacking in color.***

By Herbert Chase

BODIES have undergone numerous refinements but few if any radical departures have been made from designs which virtually have been standard for several seasons. Among the newer models are a number of additional low priced closed cars but there is scarcely a feature of their construction which can be classed as new.

Radiator designs have been improved greatly in many instances. Their lines are more graceful and they have bettered the appearance of the whole car by relieving it of the blunt nose or chopped off look which has heretofore characterized many large production cars.

So-called sport models are still much in evidence, indicating that the public is willing to pay for "frills."

Fortunately, it would seem, there are fewer all-black cars. It is recognized that such jobs are cheaper to produce and that baked enamel finish is durable, but there is no longer any doubt that many people prefer a colored car to a black one.

A large majority of manufacturers are awake to the selling advantage of colored cars but, strangely enough, very few closed cars are to be seen with anything but black above the belt line. A few makers, however, have attained individuality by varying this monotony and it is to be presumed that they will profit accordingly.

*Left, mounting of windshield wing on Flint phaeton. Right, combined visor and ventilator on Auburn "English Coach." Under side of visor is covered with a fine mesh screen*

### Few Dull Finishes

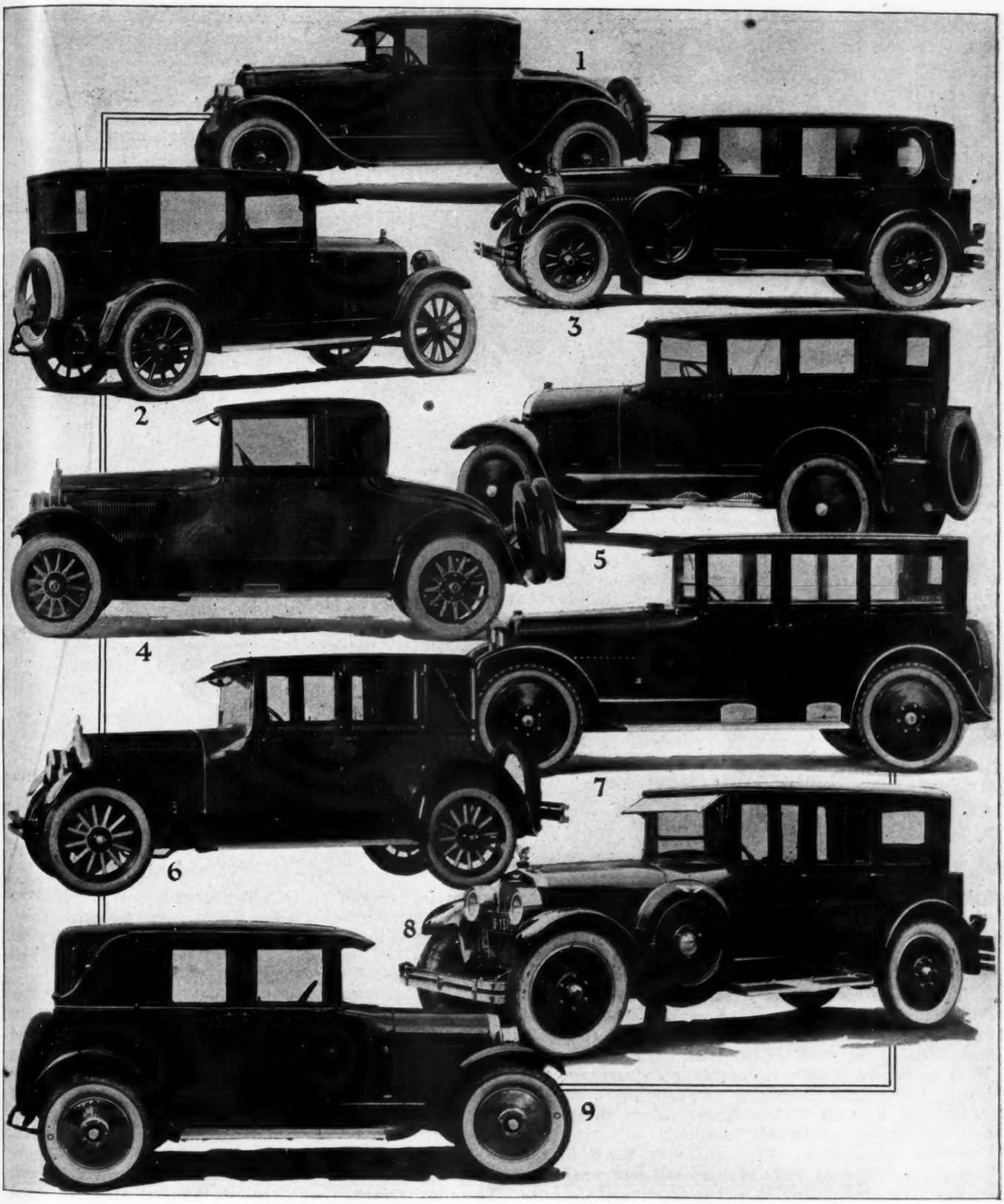
Glossy finished cars are just as much in evidence as ever. There were a few models with dull finish, but the bulk of even the higher grade bodies have the same high polish which has long been employed in cars of all grades —this in spite of the fact that a large percentage of the cars in the recent salons had an egg shell finish. Even the Oakland line, which was expected to include several cars with a satin Duco finish, lacked anything which approximated this designation.

Interior trimming of closed bodies was characterized by a sharp trend toward woolen fabrics, in place of mohairs and velours, although many examples of the latter still are to be seen. This trend is evident especially in the higher priced bodies, where broadcloth trimming is now in use again much more generally than it has been in the past few years.

Many cars which employ mohair or velour have given up the striped effects which formerly were popular, particularly on seat cushions and seat backs, and have substituted a plain or a checked material. On the cheaper closed cars also there is a wide use of granite cloth and other woolen fabrics, such as Bedford cords or rougher materials.

On open models, pleated upholstery still is the most

# New Closed Models Are Numerous




*1—A smart appearing Lincoln coupé with landau bow in rear quarter*

*2—New Essex Coach has metal quarter panels and lacks the bevel edge which was characteristic of the former model*

*3—Seven-passenger Berlin which is typical of the Kissel line*

*4—New Buick "Country Club Special" coupé*

*5—Haines 60 Sedan. The decorative kick plates add a distinctive touch*

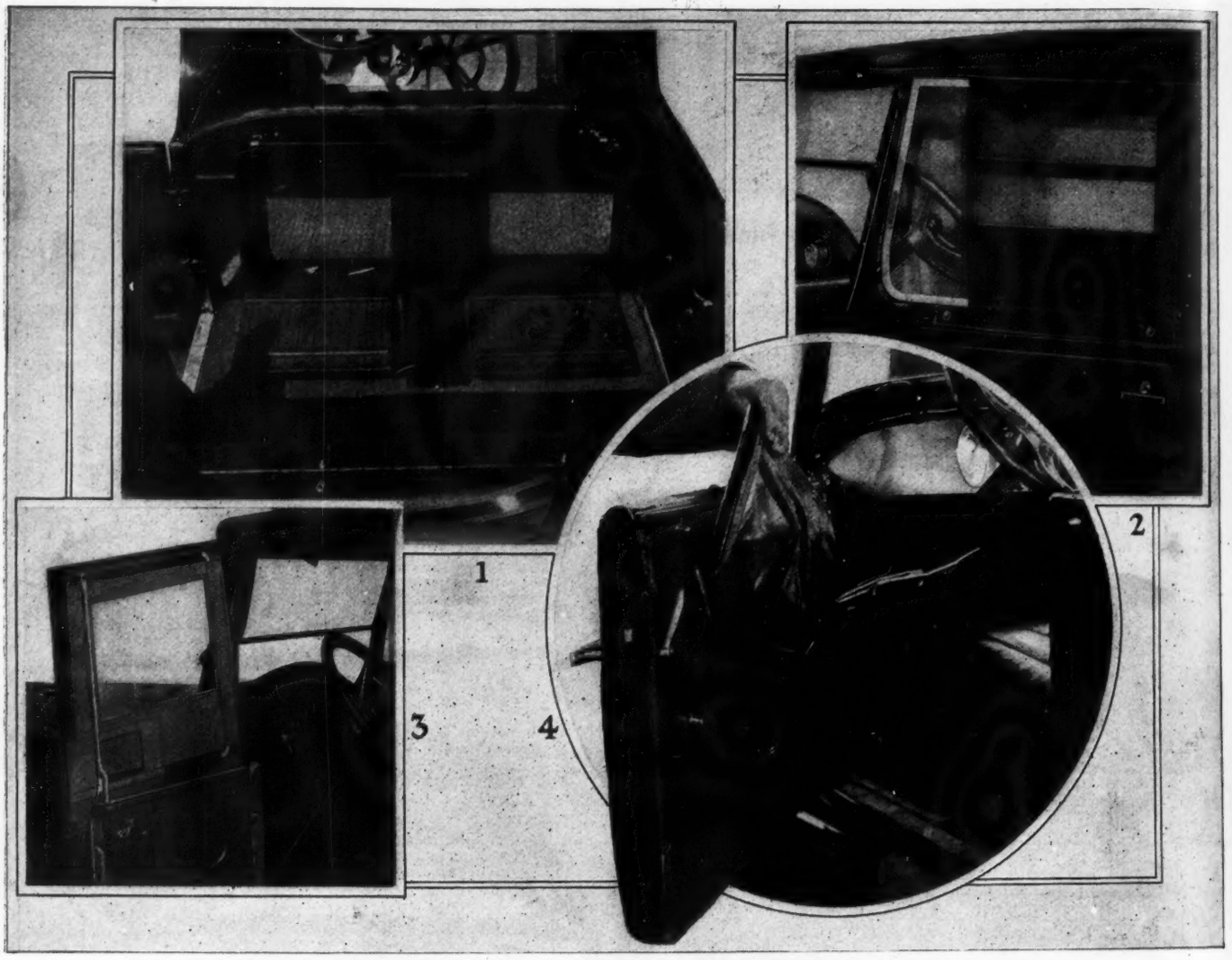
*6—Templar four-passenger "brougham"*

*7—New Nash Six "Special Sedan" has integral visor and roof*

*8—H. C. S. four-door sedan has cast aluminum window and door sash*

*9—One of the E. J. Thoumpson Meritas bodies on Dodge chassis shown at the Commodore*

# Better Provisions for Carrying Curtains on Phaetons




*1—Reo has two large curtain pockets back of front seat.*
*2—Auburn uses a built-in, clear vision windshield wing.*
*3—Hupmobile curtains are fitted with metal frames.*
*4—Dort carries curtains in side door pockets fitted with bellows.*

popular style but some of the newer open cars, especially in the higher priced class, have plain, unpleated cushions and seat backs.

A few closed cars are upholstered and lined with leather and we are told by one dealer, who sells a high priced car, that fully half of his customers are demanding leather interior trimmings. There seems, however, to be no trend toward leather for closed car interiors, except perhaps, on coupés intended for business purposes.

More closed cars, with removable rear seat and upholstery, intended for all-purpose service might have been expected, but no such models appear except those with which our readers are already familiar.

One-piece windshields, while still very much in the minority, are becoming more popular and now are being used on several open models as well as on some of the later closed jobs. In one or two cases the windshield is fixed permanently into the wooden frame, and some special provision is made for adequate ventilation without opening the windshield.

An interesting and rather promising development in this direction is the new Auburn "English Coach," in which the roof structure is extended to form a visor. The under surface of the latter is covered with a fine mesh screen inclosing a space which communicates with two narrow doors opening above the top of the windshield. This seems to provide an excellent ventilating means which, at the same time, excludes snow and rain as well as coarse particles of dirt.

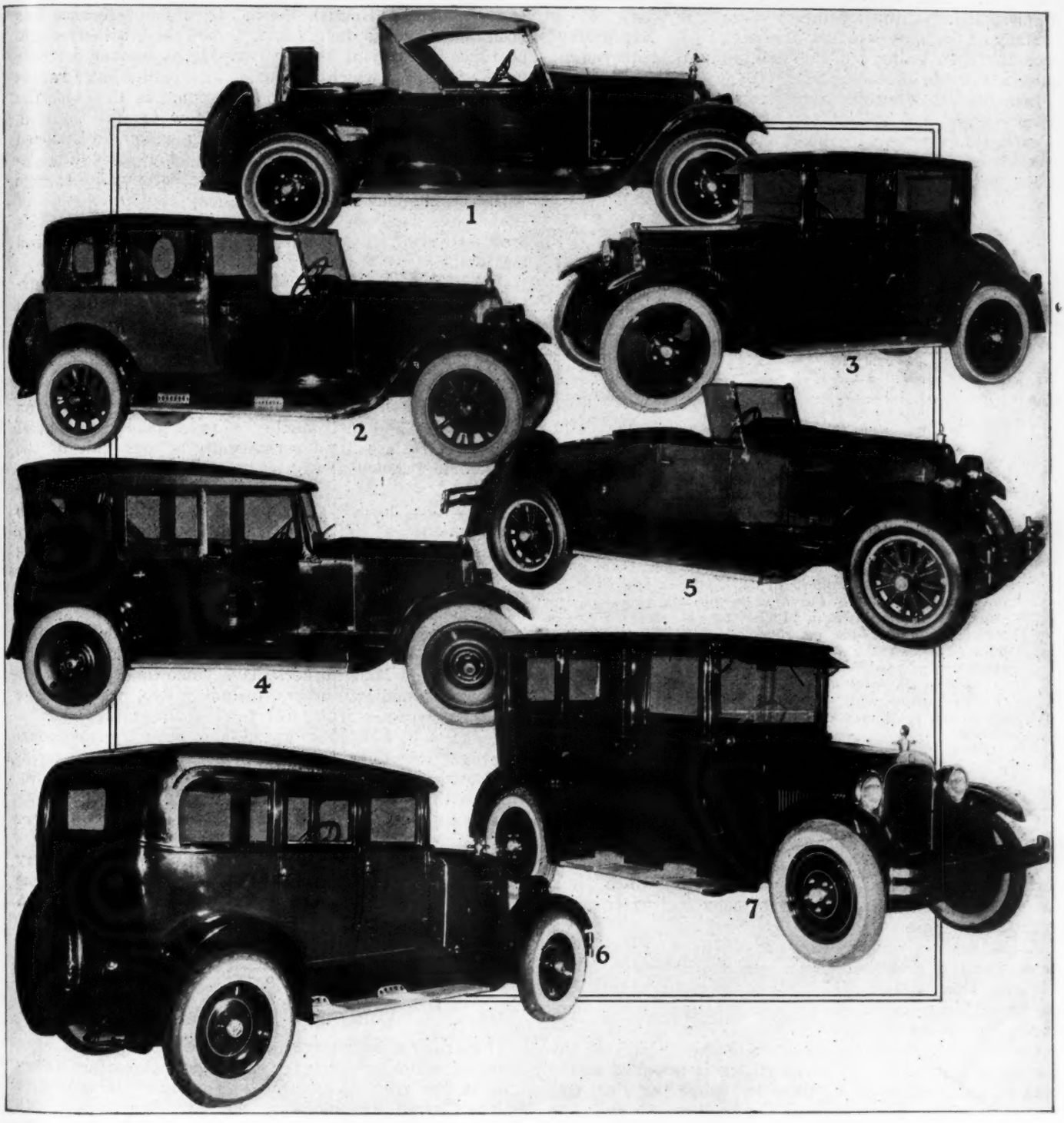
A large percentage of cars now are fitted with disk wheels, especially when balloon tires are employed. Fewer wheels are being carried on the rear of the chassis and more are mounted at each side opposite the cowl. This is done partly to improve appearance, and partly to render more accessible the trunk which is now so often fitted at the rear. An interesting variation of this arrangement, however, is to be seen in the Anderson Special Sedan, which has the spare tire mounted at the rear and is provided with a pair of trunks, one at each of the cowl. These are arranged with their bottoms at about the level of the ordinary runboard, but in this case no runboard is employed, aluminum steps being used in its place.

In a few cases in which tires are mounted at the side, the runboard is three-quarter length, as on the Kissel and H. C. S. models, for example. In other cases separate aluminum steps are employed and in still others a full length runboard, which is recessed at the forward end to accommodate the tire, is used.

Velie is showing for the first time two new body models which are finished in high baked enamel. The panels for these bodies are enameled and baked before being applied to the body frame, a construction which is used by at least one other manufacturer. This is evidence of one more effort toward decreasing cost of production and at the same time securing one of the most durable finishes which is obtainable in the present state of the art.

A majority of open models now are made with panels turned over the upper edge of the body and finished with-

# Smart Lines Characterize New Bodies




*1—Wills-Ste. Claire roadster with dickey seat. This car has two-color fenders and striped red leather upholstery which blends with body color*

*2—Buick's new town car with elliptical window in rear quarter*

*3—New Dodge four-passenger coupé fitted with Fisher body*

*4—Oakland phaeton with winter top inclosure which is furnished at extra cost*

*5—New Jordan roadster which has a one-piece windshield*

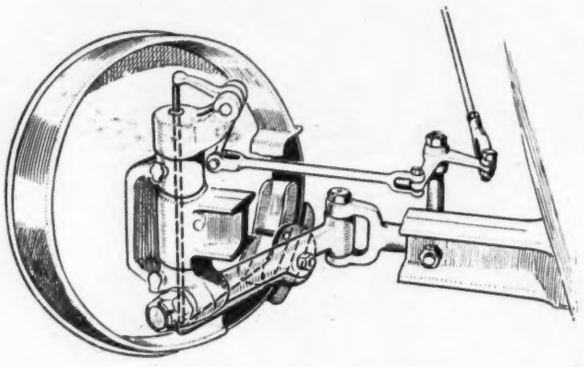
*6—Auburn's new "English Coach," which is characterized by rounded rear panels*

*7—Dodge sedan with balloon tire equipment*

out any garnish molding. There are, however, a number of instances in which garnish moldings of various types are being used again. In most cases these are of metal, although they are sometimes finished to give the appearance of being wood. Packard shows one handsome open job in which these moldings, as well as the entire frame of the windshield and the steering wheel, have a walnut finish. In other cases an angle or a channel molding is employed. This is sometimes painted and sometimes highly polished without paint.

Many of the open cars now are using Spanish in preference to other leathers. This trimming is employed in quite a few business coupés.

In a few cases, among which may be mentioned Nash, Apperson and Auburn, the roof structure of closed bodies is extended over the windshield to form an integral visor, a construction which seems to add to the appearance and avoids the impression of something attached rather than



**Star Front-Wheel Brake**

*Star front-wheel brake mechanism is operated by pull rods connecting to two bell cranks and a pin passing through the knuckle pivot and engaging a lever which is pivoted on the steering arm. Enlarged boss on this lever carries two pins on which the internal and external brake shoes are pivoted.*

*Turning the lever about its pivot, which is also the anchorage point, causes the shoes to engage the drum, most of which is inclosed by the cover shown.*

*Durant and Eagle brakes are similar but use a rotating shaft and finger to actuate the lever on which shoes are pivoted*

built into the car. Visor design, in general, has been improved but there are still used a number of visors formed from a single piece of sheet metal, which from the writer's viewpoint leave much to be desired from an artistic standpoint.

A few distinctive town cars are exhibited. One of the newest and smartest of these is a Buick brougham by Fisher. This car is finished in light gray broadcloth and compares favorably in appearance with many much more expensive custom built bodies.

Cadillac and Buick both showed Fisher bodies of the Berlin type, in which a glass partition is provided at the back of the front seat. In these two cases the glass employed is bent or formed to fit the back of the seat, but in other cars of a similar type a flat glass is used. In nearly every case this glass is arranged to be raised and lowered so that the car can be converted quickly from a sedan to a Berlin or vice versa.

Cadillac shows one of comparatively few bodies in which the color of the body is carried out in the superstructure. In this case the body is finished in olive green with a band around the window and the wheels in a lighter shade of green which offers a pleasing contrast. Other portions of the top are finished in black, but there is enough of the lighter color to relieve the heavy appearance of an all-black superstructure.

A number of closed cars now are provided with elliptical windows in the rear quarters. These, in combination with a landau bow, which is finished either in black or in nickel, help to break the monotony of straight lines.

One of the newest of the moderate priced closed cars is the Auburn "English Coach" to which reference has been made. This is given a somewhat distinctive appearance by carrying the top covering down over the rear panel of the top, which is rounded on a rather large radius after one style of English construction. In this case the upper rear corner of the rear window is also rounded. This car has fitted to the top of each window a nickeled metal strip, to which is fastened a window regulating device in the form of two spring backed bolts which engage with the channel slide. By pressing the inner ends of these bolts between the thumb and finger the glass is freed and easily raised, lowered and locked in any desired position.

Although a number of new closed cars have rear quarters covered with fabric leather, this construction has been abandoned by Essex in the new Essex Coach which is provided with metal quarter panels. When the leather panel is employed it is often combined with a landau bow, which, of course, is for decoration only.

Windshield wings are being used as much as ever on sport models and in a number of cases take the form of triangular frames fitted permanently at each side of the windshield in such a way as to facilitate fitting of curtains.

A few open models are shown with winter tops, which are furnished at extra cost in addition to the ordinary curtain equipment. Oakland and Westcott are among those having exhibits of this character.

Many makers are providing better fitting curtains and better means for carrying curtains when not in use. Dort has arranged a pocket with a bellows in the doors which gives ample space for carrying a curtain and insures its accessibility. Many others have somewhat similar arrangements, and still others, including Reo, provide large spaces back of the front seat for curtain storage.

Dodge, which a year or so ago gave up the four-passenger coupe model, has introduced a new four-passenger closed body, which is a Fisher product. This is provided with stationary driver's seat, a two-passenger rear seat and a folding front seat at the right side in rather conventional arrangement.

In closed cars of the Berlin type it is quite customary to trim the rear compartment in broadcloth or some other fabric and the front compartment in leather. A variation of this construction is seen in the Kissel berlin, which has a polished leather front seat, but a front seat back of mohair, which matches the mohair trimming of the rear compartment.

## Wills Show New Roadster

There are a number of smart two-seated open cars, some of which are fitted with an extra folding dickey seat in the rear deck. One of the latter is the Wills Sainte Claire. The model at the show is provided with striped leather upholstery material, which matches the red or maroon color of some of the body parts. This car has fenders, the central crowned portion of which is finished in a reddish color to match the body. This is one of few instances in which two colors, or, in fact, anything but black, is used on the fenders. Roamer shows a roadster which has a recess back of the seat into which the folding top disappears.

# Details of Body Design are Improved

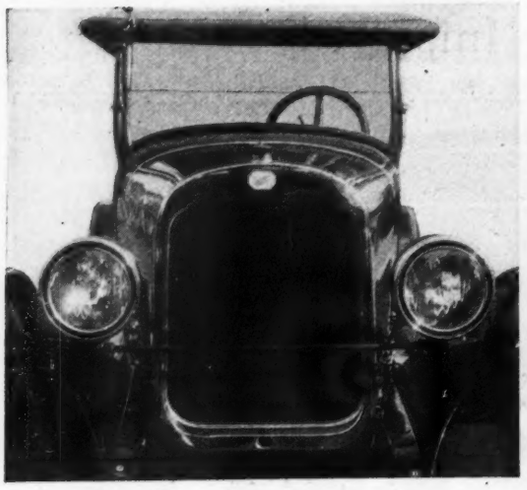
1—*Roamer roadster with folding top arranged to disappear in a recess behind the seat*

2—*Curved windshield on new Buick model*

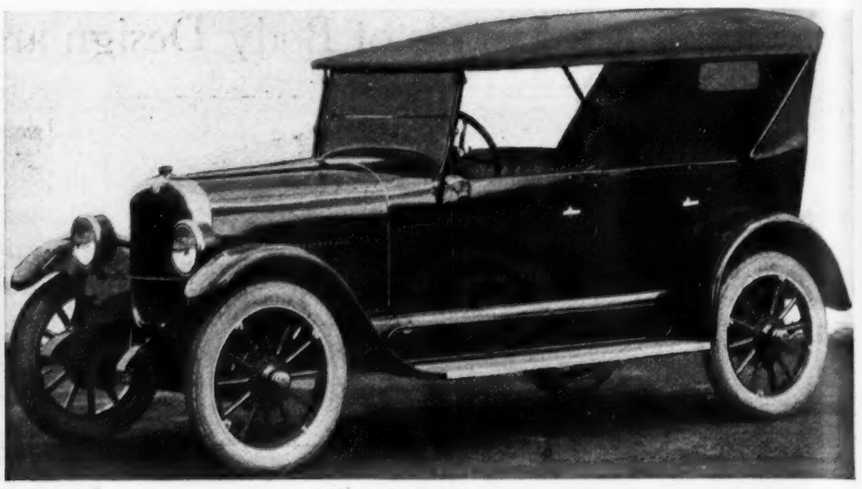
3—*Chevrolet four-passenger coupe showing the folding front seat which is trimmed in plain material*

4—*Forward end of Auburn special sedan showing the mounting of one of the two trunks which are at each side of the cowl*

5—*Four-door Apperson sedan which is one of the few closed cars with leather interior trimming. Visor is integral with roof structure*



*Close-up of radiator design on new Eagle*



*Five-passenger phaeton model of Eagle, announced by Durant*

# Interest Focuses on New Car Announcements

***Peerless Six and Eagle are given first publicity during Show Week. Many body models, not previously described, appear at Armory. Closed types predominate. Extra equipment popular.***

MANY new models were shown to the public for the first time at the New York Show, but only a few chassis entirely new to readers of AUTOMOTIVE INDUSTRIES made their appearance. The new Peerless six-cylinder model, which has been brought out as a companion to the eight-cylinder line, is one of this latter group, while the new Eagle, which Durant placed on view at a Broadway salesroom, is another.

Practically all of the remaining new chassis exhibited at the Armory, including the Chrysler, Elgin, Templar, Gray and others, were described at the time of their first announcement. A considerable number of new body models were shown, however, and some detail changes in chassis came to light. The following are the show developments not covered in earlier issues:

### Peerless Six

Bearing the Peerless, instead of Collins, name, a six-cylinder model comprising three body types has been introduced by the Peerless Motor Car Co. The new model, which has hood and radiator lines similar to the eight, is built on a 126-in. wheelbase and powered by a six-cylinder engine of 3½-in. bore and 5-in. stroke. Seven shimless main bearings carry the crankshaft, which is unusually sturdy, being 2⅜ in. in diameter at all of the main bearings. Lockheed hydraulic four-wheel brakes are included in the standard specifications, although mechanically operated two-wheel brakes are optional. Hand brakes are internal expanding shoes on the rear axle in either arrangement.

Three body types embrace a five-passenger phaeton, two-passenger roadster and a five-passenger sedan. Exterior finish is in the blue paint which has characterized the eight-cylinder line. Complete accessory equipment is provided with all three types. In addition to the usual instruments such as the speedometer, ammeter and oil gage, all three models are equipped with snubbers, front and rear, tire carrier with key and lock, tire pump, transmission lock and clock, windshield wiper, rear view mirror, automatic rear signal and an inspection lamp with extension cord.

Regular lighting equipment also includes head lamps with special lenses, cowl or parking lamps and dash lamp. The phaeton is fitted with a permanent top and all weather curtains. Special provisions have been made for clear vision at all angles in the design of the front and windshield of the sedan. A permanent visor protects the upper part of the windshield under all weather conditions.

Engine and transmission are bolted together at the clutch bell housing and supported by two arms at that point and a bracket at the timing gear cover. Crankcase and gear box are of aluminum. The cylinders of the L-head construction are cast in a single block with liberal water space around all valve seats and cylinder barrels. Combustion chambers are formed in the head which attaches at a surface in the approximate plane of the topmost position of the piston head. Intake valves are nickel steel and the exhaust valves are special alloy. The entire valve operating mechanism is inclosed by cover plates.

### Silent Chain Drives Camshaft

Silent chain drives the cam and auxiliary shafts, the former being supported in four bearings which, like all of those on the crankshaft, are lubricated under pressure by a gear pump, which is submerged in the sump. A jet in the oil line also floods the timing chain train. The electrical system is special Delco-built of two-unit construction with semi-automatic spark advance. A single belt drives the fan and centrifugal water pump, which are combined into a single unit at the front end of the cylinder block. The radiator is of the standard Peerless honeycomb type.

Particular attention has been devoted to carburetion and manifolding. In conjunction with a Ball and Ball two-stage carbureter, the manifolds have been carefully worked out to give even distribution to all cylinders. Approximately 70 hp. is delivered at 2500 r.p.m. and low-speed performance is very smooth. Acceleration from 5 to 25 m.p.h. has been accomplished in less than 7 seconds. Quick starting is facilitated by an auxiliary manual air control. Fuel is supplied to the carbureter through a strainer by a large vacuum tank on the forward side of the dash, this supply being drawn through another strainer from a 20-gal. tank, which is suspended from the rear end of the frame. Both strainers are in an accessible position under the hood.

### Dry-Plate Multiple Disk Clutch Used

Power is transmitted to the gearbox by a dry-plate, multiple-disk clutch, the driving plates being faced with wire-woven asbestos fabric. The gearbox is conventional, three speeds forward and reverse being controlled by a centrally located lever which is equipped with a key lock. All gears and shafts are made of chrome nickel steel. Spicer universal joints are fitted at each end of the tubular propeller shaft. Axle reactions are taken by a torque arm which is anchored at a fabric joint at the forward end, thus obviating the possibility of noise.

Both axles are equipped with Lockheed hydraulic brakes, the rear axle being semi-floating construction with alloy steel shafts and spiral bevel gears and the front being the reverse-Elliot type with knuckle center lines inclined for center point steering. Twelve spoke hickory wheels mounted on roller bearings are standard all around and tires on all models are 32 x 4½ straight side cords.

Spring suspension is semi-elliptic at both front and rear. The front springs are 2 in. wide and 37 in. long, while the corresponding dimensions for the rear are 2¼ in. and 54 in. respectively. Thin spring leaves and shock absorbers are used at both axles to produce smooth riding qualities. Carbon steel is used for the frame which tapers from 45⅛ in. at the rear to 28 in. width at the front, with maximum depth of the side channels 7½ in.

Steering is accomplished by a Gemmer worm and gear steering gear, which is equipped with ball bearings and a thrust adjustment. An aluminum spider at the upper end carries an 18-in. corrugated rim of American walnut. Spark and throttle manual control levers of a distinctive nature are mounted at the head.

Simplicity has been one of the governing factors throughout the entire design. It is stated that the achievement of this feature has resulted in unusual accessibility and a high standard of general performance. Along with the excellent acceleration and low-speed performance, excellent riding qualities have been obtained, it being asserted that test cars have been driven around sharp corners at 40 m.p.h. with a noticeable lack of skid.

### Eagle

W. C. Durant has another addition to his line in the Eagle six which, with phaeton body, lists at $820 f.o.b. Flint. The new car has 115-in. wheelbase and carries four-wheel brakes as standard equipment without extra cost. Besides the five-passenger phaeton, which is on exhibit at the Flint salesroom on Broadway but is not at the show, there will be a sedan model, the price of which is not announced.

Except for the Oldsmobile, the Eagle is the lowest priced six on the market. It comes between the Star and the Durant in price, and resembles both in certain respects. It is fitted with an engine of Continental manufacture, and has a bore of 3⅛ and a stroke of 4¼ in.

Other units include a Warner gearset, Spicer universals and Adams axle. The chassis has the same tubular "backbone" single-plate clutch and steering gear which are characteristic of other Durant products, while the front-wheel brakes appear to be duplicates of those used on the Durant car. Front brakes are actuated by pull rods which connect the pedal shaft to short shafts on each end of the front axle center. These short shafts are bracketed in front of the axle and have at their inner ends upstanding levers and at their outer ends horizontal levers, the ends of which are directly under the knuckle pivots.

The last-mentioned levers contact with a third pair, each of which is pivoted on an anchorage which is attached to the knuckle steering arm. The boss on the pivoted lever is enlarged to form a disk to which are attached two pins. Each of these serves as a pivot for a brake shoe, one inside and one outside the brakedrum. The brake shoe pivot pins, being eccentric to the axis of the lever, draw the shoes together when the lever is turned in one direction and thus apply the brakes. Retractor springs return the lever to its off position and separate the shoes when the brake is released.

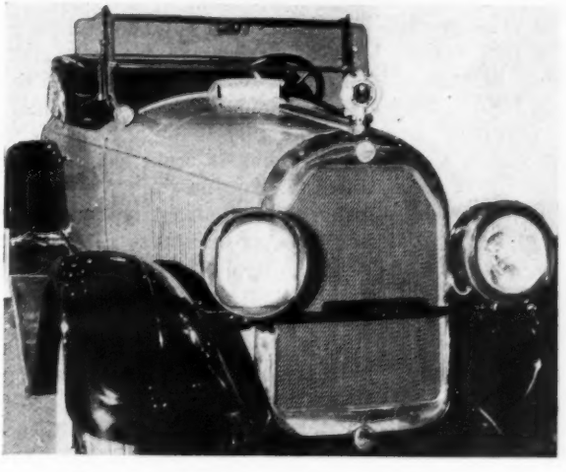
The steering system is similar to that on the Star, and incorporates a transverse drag link. The steering wheel has a central horn button, but spark and throttle levers are underneath the wheel.

Springs are all semi-elliptic. The rear pair is underslung, and metal rebound hooks are provided. Hotchkiss drive is employed. Wheels are wood-spoked and are painted blue to match the body, which has a fine white two-line stripe near the top. The hood is not striped but is finished in plain blue. Fenders and other sheet metal work are enameled black. A nickel radiator shell and lamp doors are provided and there is a polished aluminum strip between the hood and the forward edge of the cowl. A tire carrier is fitted at the rear.

### New Body Models

Closed cars comprise a large portion of the new body models, although several interesting open jobs made their first appearance.

Chandler has added two sedan models to its line, one of



*New Peerless Six*

which is a four-door, five-passenger type; the other carries seven passengers. Balloon tires are optional equipment at an extra price of $100.

A special sedan has been added to the Nash line. It is mounted on a six-cylinder, 121-in. wheelbase chassis and has blue upholstery.

Lexington shows two new models known as the Lexington-Concord sixes. One of these is a sedan and the other

a phaeton. Both are mounted on a chassis of 119-in. wheelbase. Balloon tires are offered as optional equipment. The extra price for these tires, together with a set of five special disk wheels, is $100.

A de luxe sedan is the new model shown by Cleveland. The sport model has been discontinued.

Buick has on exhibition three bodies not previously shown. These are a town car, a limousine and a country club special. All three of the bodies are fitted to the 128-in. wheelbase chassis. The town car is finished in bright green on the door panels and rear quarters. The wheels are finished in the same shade of green, but all other paint work on the car is black.

The country club model is a coupé type and has an unusually large storage space, accessible from the rear deck and from a door on each side. The compartment extends clear across the car just back of the seat. This model is finished in gray, has red wire wheels and black trimmings and running gear. All three of the new Buick models carry black moldings with orange striping.

### Buick Has Three New Models

The limousine resembles a Berline in general construction. It differs from the regular Buick seven-passenger sedan chiefly in that it has a curved glass partition separating the front and rear compartments.

Two important changes have been made in the equipment of the Rickenbacker. Four-wheel brakes are now standard equipment on all models, there being no option. All Rickenbacker cars are now furnished regularly with a considerable amount of extra equipment. The radiator has been lowered about 3 in. and balloon tires are offered as optional equipment at an additional price of $75.

Columbia offers four-wheel brakes as optional equipment at an extra cost of $75. A model 7-U Continental engine is now used in place of model 6-Y. Balloon tires are furnished as extra equipment for $50.

A large part of the Chalmers exhibit is given over to the new Chrysler car, the following models of which are displayed: One two-door, five-passenger sedan; two four-door five-passenger sedans and one five-passenger phaeton. All are handsomely painted jobs with attractive radiators and double belt molding. A full description of the new Chrysler appeared in AUTOMOTIVE INDUSTRIES of Dec. 27.

The Velie line has been extended to include a new phaeton and a new sedan, both of which are five-passenger jobs finished in high bake enamel, which is applied to the body panels before they are attached to the body frame.

An entirely new line of bodies on 127-in. wheelbase chassis and a number of chassis improvements are exhibited by Wills Ste. Claire. Engine refinements include a new firing order, improved lubricating system and a new form of gear producing greater quietness in the front-end drive. The clutch now has a single large disk with the lining woven into the aluminum disk.

There is now a single exhaust muffler of large size involving a larger exhaust pipe intended to lessen back pressure and increase quietness and efficiency. Balloon tires and four-wheel brakes are provided as standard equipment.

Several new body models are shown, including a seven-passenger sedan, five-passenger sedan, five-passenger "brougham," four-passenger coupé, five-passenger sport and four-passenger roadster.

Cadillac has on view a new seven-passenger sedan intended primarily for rural and business trade. The body has steel panels on wood frame.

Three new models, replete with special equipment, are shown by Dodge. All of the new jobs—a sedan, a four-passenger coupé and a phaeton—are equipped with balloon tires, nickel-plated radiators and trim, bumpers, windshield wipers and Moto-Meters. The four-passenger coupé has Fisher body. This car is upholstered in mohair and has a package space back of the driver's seat and storage room beneath the rear deck.

Changes on the Hudson engine are shown for the first time. They consist largely of alterations in the intake and exhaust manifolds.

The roof of the coach has been dropped 2 in. and the seats lowered 2 in. Leg room has been increased 6½ in. in the rear compartment by lengthening the body and extending it out further over the rear axle.

A number of chassis refinements are found on the Marmon. The water pump now is mounted on the left front of the crankcase and is driven by direct connection with the accessory drive shaft.

The fan has been moved closer to the radiator by putting the fan pulley behind the fan instead of in front of it. The fan drive pulley is now on the front of the crankshaft where the water pump formerly was located. Changes in the oil passage of the lubricating system permit centrifugal oil feed to the fan hub bearing.

An additional provision for hot air for the carbureter is made by an air heater which can be detached in summer.

Body improvements include a new type of folding trunk rack, polished aluminum tonneau bars and an improved hood catch with concealed mechanism. Ballon tire equipment in the 34 x 7 in. size is available at $175 extra.

Chevrolet shows a new four-passenger coupé. Chassis changes include an increase in brake size and a change in layout of the brake-operating linkage. The brake drums are now 13 in. in diameter instead of 12 in., and the brake width 1½ in. instead of 1¼ in. Operation of the brake is by rod instead of cable.

Owing to the fact that the engine is now set higher in its supports, the steering gear passes under the support instead of over it. The front axle is straight instead of curved, as formerly, and the rear axle is heavier and resembles in design that used formerly on the "Copper-cooled" Chevrolet. The housing at the center is pressed instead of being cast. An Alemite fitting is supplied at the spring end for shackle lubrication.

The new four-passenger coupé is upholstered in velour and is provided with a full-width door. The extra seat for the fourth passenger folds out of the way when not required. Storage space is provided under the rear deck and the interior of the body is equipped with Ternstedt window regulators. The body is of Fisher manufacture.

A new line of bodies is shown by Lincoln, including a four-passenger phaeton, seven-passenger suburban limousine, seven-passenger sedan and five-passenger phaeton.

### Barley Raises Hood and Cowl

The hood and cowl of the Barley have been raised 2 in. and hydraulic four-wheel brakes are now fitted without extra charge. A Herschell-Spillman six-cylinder, seven-bearing engine is now used in this car.

Elcar shows its new chassis model known as the 6-50. Four-wheel brakes and balloon tires are optional equipment on all models. The four-wheel brakes are of the Salisbury mechanically operated type.

The "Radio special" sedan, a sport touring and a three-door "brougham" are new body models exhibited by Gardner.

Westcott presents a new model 60 built on a chassis specially designed for closed bodies. It is equipped with a new seven-bearing, six-cylinder engine. The bore is 3¼ and the stroke 5 in. Special efforts to secure light weight have been made in designing this car. The complete five-passenger sedan is said to weigh little more than 3000 lb. Four-wheel brakes and balloon tires are fitted as optional equipment at extra cost.

Two new bodies are shown by Stearns, one on the six-

cylinder, 130-in. wheelbase, the other on the four-cylinder, 119-in. wheelbase chassis. The former is a five-passenger "brougham," with leather-covered quarter and back panels, the latter a sport coupé.

Haynes showed a new four-door "brougham," the rear quarter panels of which have elliptical windows.

Elgin has a five-passenger "brougham" as an addition to its recently announced line. The new model is upholstered in broadcloth and has a heater which is controlled from the cowl.

Davis displays its new Mountaineer Series 81 which will be built in conjunction with the light six model 71. The new model is equipped with a Continental 8-R engine and has a 118-in. wheelbase. Lockheed four-wheel hydraulic brakes are optional at an extra charge of $75 and balloon tires at an extra charge of $40.

A new four-passenger coupé is the feature of the H. C. S. exhibit. This model is fitted with balloon tires.

The feature of the Auburn exhibit is an English coach. This has a curved rear panel and the roof extended beyond the windshield to form a vizor. Disk wheels are standard on this model. Four-wheel brakes are offered as an extra on all Auburn models at $135, while five balloon tires are furnished instead of the regular cord tires at an additional charge of $125 on the small and $150 on the large car.

Four cars with Meritas fabric bodies are being shown at the Commodore. The display includes the original Meritas body on a Packard chassis which was exhibited last year, and which has since seen 20,000 miles usage, a three-door sedan on a Dodge chassis, a Berlin on a Lincoln chassis and a four-door on a Ford chassis. Each of these bodies is being produced by a different company under license from the Fabric Body Corp., Detroit. The Packard body is the product of the Model Body Corp., Detroit; the Lincoln Berlin comes from the Merrimac Body Co.; the Dodge sedan body is being made by the E. J. Thompson Co., and the Ford sedan is being produced in quantities by the Mengel Co.

In the southwest corner of the Armory are grouped the exhibits of seven manufacturers of taxicabs. By name these products are the Mogul-Checker, Dodge, Pennant, Yellow-Cab, Reo, Rauch-Lang and Premier. All of these models are fitted with four-cylinder engines. Balloon tires are found in the exhibit of the Yellow Cab Co.

A new three-quarter-ton truck powered with a standard Willys-Knight engine is being shown at the Commodore by the Federal Motor Truck Co. This model is known as the Federal Knight Express. It is fitted with 32 x 4½-in. pneumatics on all four wheels and is designed for fast delivery work.

# Parts Manufacturers Exhibit New Products

***Seven-speed gearset, taxicab engine, new drag link design, oil purifier, car heater, brake equalizer, and windshield cleaner are among new units presented at the Armory or in the hotels.***

PARTS makers are not so strongly represented as in previous shows. There are no bearing exhibits, for instance, few chassis springs, no frames and comparatively few axles. Whether this is due to the fact that the industry has been working at high pressure during the past year and every established parts maker has had plenty of business or to other causes is hard to say. That the S. A. E. meeting is not held during the show may have had some effect on the decision of parts makers to stay away, as it is to be expected that not so many engineers will come to New York as would otherwise have been here.

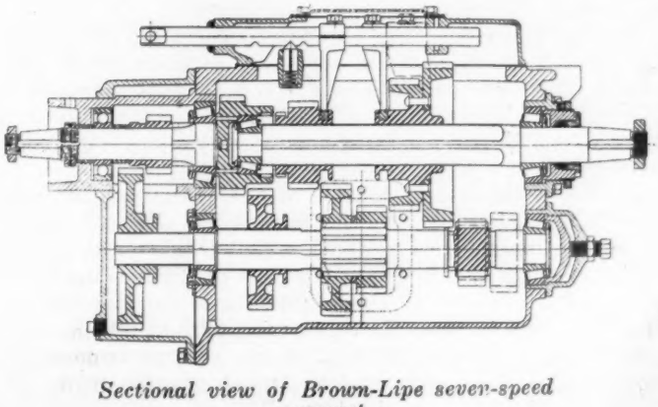
Among the more important new parts shown at the Armory and in hotels may be mentioned a Brown-Lipe seven-speed gearset for trucks, a Waukesha engine for taxicabs and similar vehicles, a new design of drag link by the Steel Products Corp., an M. I. C. oil purifier and a Turner & Moore brake equalizer, and a car heater and a windshield cleaner by the Stewart-Warner Speedometer Corp. The great majority of the stands in what is usually referred to as the accessories section contains accessories, tools and supplies that are usually bought by the car owner.

### New Brown-Lipe Gearset

Brown-Lipe Gear Co. exhibits a new gearset known as their Maximum Model 60, by means of which it is possible to obtain seven forward and two reverse speeds. The gearset comprises essentially a standard four-speed overgeared gear with the addition of an extra pair of gears performing the same function as the usual constant mesh set. In this particular set there are no gears that remain constantly in mesh, and the gears that take their place may advantageously be referred to as the first reduction gears, of which there are thus two sets. The second set is located in an extension of the housing at the forward end.

The transmission is of the main frame type and is not made for unit power plant construction. The driven members for both sets of first reduction gears are arranged to slide on the secondary shaft and therefore can be shifted into and out of mesh with their respective pinions. When the rear set is in mesh the high range is obtained and when the front set is in mesh the low range. Details of construction may be seen from the sectional view herewith. For the high range the speed ratios within the gearbox are as follows: First, 3.95; second, 1.89; third, 1, fourth, 0.75; reverse, 4.75. On the low range the ratios are: First, 9.50; second, 4.53; third, 1.88; fourth, 1, reverse, 11.4.

A new Model Z engine for taxicabs and light trucks is being exhibited by the Waukesha Motor Co. This is similar in design to the Model Y brought out last year, except that it does not have the removable cylinder sleeves. It is a four-cylinder design of 3¼-in. bore and 4½-in.



*Sectional view of Brown-Lipe seven-speed gearset*

stroke and is designed for three point support on the frame. Cylinders, crankcase and bell housing are in a single casting, and there are three main bearings for the crankshaft. As might be expected, the engine has the Ricardo-Waukesha combustion head. A bracket for the magneto is cast on the crankcase and provision is also made for a generator and an electric starter. Lubrication of the main and crank pin bearings is by force feed.

### Steel Products Corp. Drag Link

The Steel Products Corp. shows a line of its automobile parts, including a new design of drag link. This is made from steel tubing which is upset at the ends, the intermediate portion between the tube and the upset head tapering at a considerable angle. A steel plug is swaged into this tapered portion, to act as support for the hardened steel block serving as socket for the ball. One unusually large drag link, designed for the G. M. C. 52-passenger bus, is being shown, having a 6 in. length of socket and taking a 2¼ in. ball. Other items of this company's line are Silcrome valves and spring bolts, both of which are shown in great variety.

The Stewart-Warner Speedometer Corp. exhibits a new exhaust gas car heater known as the Stewart car heater. Its distinctive feature is that the heating element is made of pressed steel instead of cast metal, which reduces the heat capacity of the element and causes the heating effect to start almost immediately upon turning on the heater. The top part, which sets into the floor of the car, is made of cast aluminum. By removing two screws the whole of the heating element can be taken off and the pan cleaned of any accumulations. A wire control leads from the heater valve to the dash and it is possible to pass practically the whole of the exhaust gas or any portion of it through the heater, so the heating effect can be finely regulated. This heater is made in two models, one almost square in form and the other long and narrow.

### Stewart-Warner Windshield Cleaner

Another novelty of the Stewart-Warner Speedometer Corp. is an electric windshield cleaner. It comprises a shunt-wound, quiet-running, slow speed electric motor which derives its current from the storage battery of the electric system. The field frame is of the laminated type and the motor is said to be more powerful than others used for the same purpose. At the end opposite the commutator there is a reducing gearing which is completely inclosed and runs in oil. This mechanism not only reduces the speed but also converts the rotary motion of the armature shaft into rocking motion of the shaft projecting from the housing and carrying the cleaner blade. The pressure of this blade against the glass can be adjusted by means of a screw provided for the purpose. The motor and reduction gear are inclosed in a sheet metal housing which is fastened to the windshield by two screws.

Another novelty of the Stewart concern is a new spotlight which can be snapped out of its position on the car after a screw has been loosened a few turns and can then be used as a trouble light. The lens at the front of this light is held in position by means of a clamping ring that screws on.

An impressive demonstration of the advantages of balloon tires is being given by the Wire Wheel Corp. of America. Two wheels are mounted side by side on a pulley having projections on its surface, one of them being shod with an ordinary 30 by 3½-in. pneumatic tire pumped up to 45 lb. p. sq. in., and the other with a 29 by 4½-in. balloon tire pumped up to 18 lb. p. sq. in. A scale is mounted alongside of the wheels and the much greater throw of the wheel with the hard tire is readily seen.

The Hartford Battery Mfg. Co. shows automobile type batteries in which a rubber separator is wrapped around the lower ends of the positive plates. This prevents short-circuiting of the plates by active material shed by the plates in service, and it is claimed that it materially prolongs the life of the battery, as 80 per cent of all battery troubles originate at this point. Regular wood separators are used in addition to these rubber insulators.

An ignition unit including the coil, condenser, interrupter and distributer is exhibited by the Simplex Ignition Corp. The condenser is attached to the side of the coil and the combined unit is inserted into the dust-proof and water-proof housing from below, connection with the rest of the system being established by contact. The distributer and interrupter are at the top of the unit, which has a cap held on by spring clips. With all of the parts in a single unit the amount of outside wiring is, of course, reduced to a minimum.

Robert H. Hassler, Inc., which firm in the past has been prominent in the manufacture of supplementary springs for Ford cars, has come on the market with a friction type shock absorber for other cars. It is self-lubricating and non-adjustable and therefore is claimed to require no attention in use. This device retards spring action both during compression and rebound, and in its construction forgings and castings are used rather than steel pressings.

### Wyman-Gordon Crankshafts

Wyman & Gordon show a large variety of crankshafts, some of them cut in halves and with the sections etched to show the grain flow. Gear forgings thus sectioned and etched are also shown. The company now drop-forges counterbalanced crankshafts with the balance weights forged on. Several crank forgings for eight in line engines are included in the exhibit.

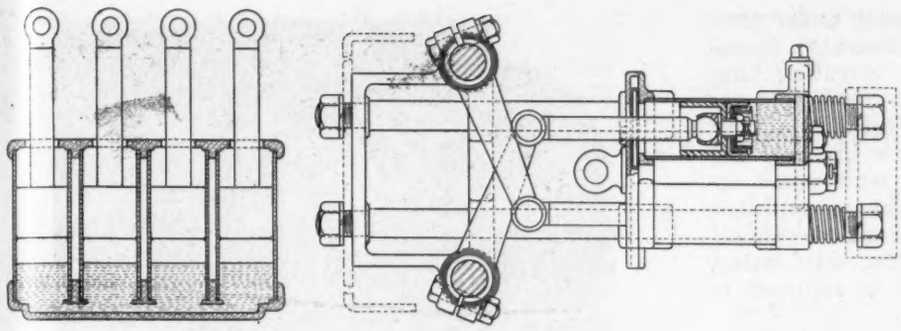
The K. P. Products Co., which manufactures a governor for truck engines, has made several improvements in the course of the year. The governor now has an outside adjustment and is generally more compact and of simpler construction.

Light alloys are well represented, extensive exhibits of an educational character being made by the Aluminum Company of America and the Baush Machine Tool Co. The Aluminum Company of America shows a large section front axle in the form of a heat-treated aluminum alloy forging, as well as a rear axle housing of aluminum alloy. The company has begun to make screw machine products of its 17-S alloy, and these are already extensively used in the industry for such parts as inside door handle knobs.

The 17-S alloy contains 4 per cent of copper, 0.5 per cent of manganese and 0.5 per cent of magnesium, the rest being aluminum. Most of the parts are turned from hexagon rod which has been tempered in a sodium or potassium nitrate bath, then quenched in water and allowed to age. Other parts displayed at this stand are a crankcase top section for an eighteen-cylinder aircraft engine developed at McCook Field and die-cast aluminum parts for the control gear of automobiles.

### Turner & Moore New Hydraulic Equalizer

The Madden equalizer, a device for equalizing four-wheel brakes on automobiles, trucks, etc., will be manufactured at the plant of the Turner & Moore Mfg. Co. in Detroit. The device can be applied to any chassis with two, four or more brakes. It is hydraulically actuated and is designed to be located at the rear of the brake pedal. It is constructed with two shafts mounted across the frame and separated in the center. On these shafts there are four levers, in the case of a four-wheel brake, which are in line with and connected to the piston rods in the equalizer.



*Sectional view of Madden hydraulic brake equalizer*

Cylinders are connected to the brake pedal, and are partly filled with a non-freezing liquid. Motion of the brake pedal moves the cylinders, applying pressure to the pistons through the liquid contained in the cylinders.

A by-pass permits the liquid to flow from one cylinder to another to offset differences in lengths of the linkage and equalize the pressure on each brake lever. If it is desired to have less pressure on the front wheel brakes than on the rear, this is accomplished by shortening or lengthening levers.

It is claimed that the flexibility of the device is such that one or more of the brake bands can be exceptionally loose and will still exert equal pressure on the drums. It is possible also, it is stated, to break or entirely lose one or two brake rods and still have equalized pressure on the remaining drums. The installation is made anywhere on the chassis to suit the manufacturer as long as the cross shafts are placed between the rear axle and the brake pedal.

## Novel Features Incorporated in New Oil Purifying System

AN oil purifying system designed to remove from crankcase oil all solid contaminations, as well as water, and to keep the oil in a perfectly clear state has been placed on the market by Motor Improvements, Inc. The solid matter which gets into the crankcase oil and which interferes with its action as an efficient lubricant is of three kinds, viz., carbon formed by the coking of the oil and the fuel; silicious matter taken into the system in the form of road dust, and metal particles worn off the castings and bearing surfaces. By removing all such abrasive material as soon as it is introduced into the system, bearing friction and consequent power loss should be reduced and the life of piston rings, cylinder walls and other wearing parts increased.

### Engine Performance Improved

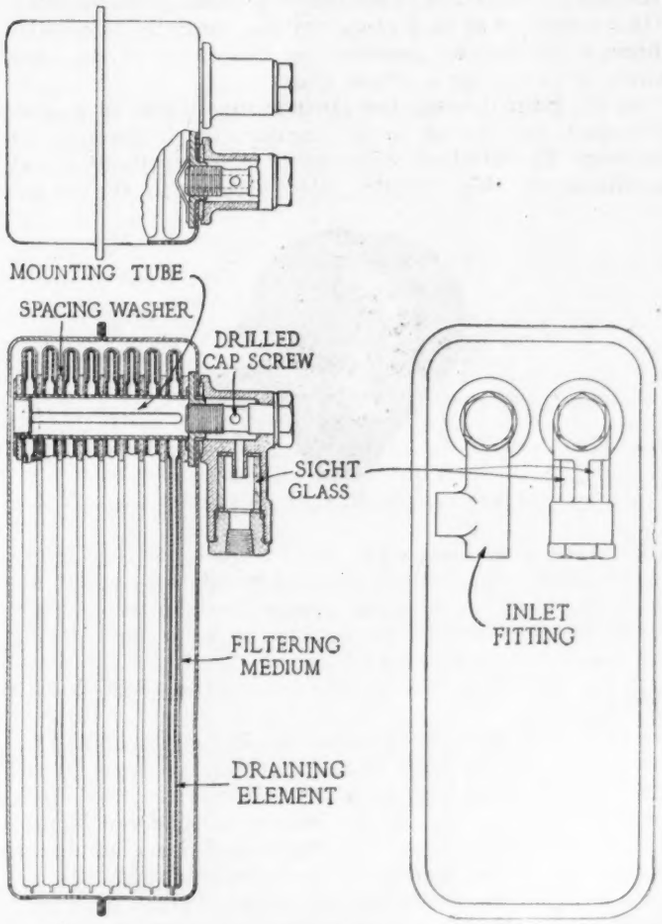
It is claimed that cars equipped with this system have been operated in excess of 25,000 miles without ever opening or draining the crank cases, with noticeably improved motor performance and freedom from engine troubles. The elimination of the necessity for draining the crank case—one of the most irksome tasks connected with the care of a motor car—will undoubtedly be appreciated by us.

A sectional view of the purifier as designed for the general run of passenger cars is shown herewith. The apparatus is made up of eight filtering elements placed within an oil-tight rectangular case of sheet metal. Each of these elements is in the form of a container of fibrous material, specially treated by a patented process, within which there is a drainage element of perforated sheet metal. The drainage element consists of two opposed metal leaves, closely perforated, with the metal from the perforation projecting inwardly, thus insuring permanent separation of the two leaves, and a free flow of the filtrate through the provision of adequate drainage area.

Registering circular openings in the filtering and drainage elements, centrally near the top, permit of mounting the eight filtering elements on a tube, provided with a slot parallel to its axis, into which outlet tube all of the eight drainage elements deliver the filtered oil. The filtering elements are separated by spacing washers.

The M. I. C. oil purifying system is applicable to all engines. In the case of those having no oil pump, such as the Ford, the lubricating system is converted into a pressure system in a very simple manner and the purifier then applied. Installation is easily made by tapping anywhere in the pressure side of the oil circulating system. Usually a T connection is placed in the line running to the oil gage on the instrument board, this T connected by a short piece of copper tubing to an inlet fitting on the case.

Oil from the pump enters the filter through this fitting,



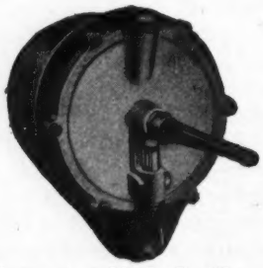

*Sectional and side views of M. I. C. oil purifier replacement unit*

fills the whole interior of the case, and, being under pressure, is forced through the filtering elements; thence through the drainage elements into the mounting tube, and thence through a cross drilled hollow bolt into the outlet fitting, which is developed in the form of a sight feed. The outside dimensions of the case are only 8¼ in. x 3¼ in, but within this relatively small space approximately 2½ square feet of filtering area are provided, making it possible to purify an ordinary crank case supply from three to four times an hour. From the outlet fitting, through the sight glass, the purified oil is returned to the crank case.

In the course of time, as material separated from the oil accumulates on the outside of the filtering elements, the rate of flow through the purifier decreases, as indicated by a reduction in the flow through the sight glass, and it is recommended by the manufacturers that after an average year's operation the filter unit be removed and replaced by a new one. The owner is to be guided by the rate of flow as indicated by the sight glass in determining when to renew the filter unit.

A somewhat different model of purifier from that described, designated as Type T, is manufactured for truck engines, etc., the distinctive difference being that this type is cleanable. It is substantially cylindrical in form, instead of rectangular. The contaminating materials are removed from the filtering elements by a scraping action and the elements need not be renewed. These elements of the truck model are circular in form and are mounted on a central shaft of square section. There are stationary scrapers inside of the casing and by rocking the shaft and the filtering elements mounted upon it, back and forth a number of times by means of a crank handle on the front of the case, the foreign matter is removed from the filtering elements and deposited in a sump in the housing. After a number of such cleanings the sump can be emptied through an opening provided on the front of the case, which is closed by a screw plug.

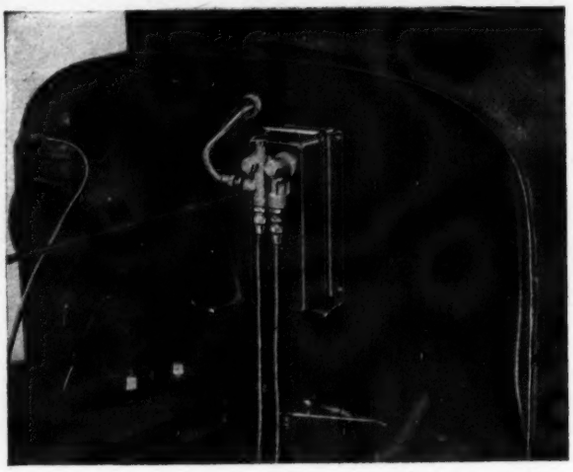
As the path through the purifier constitutes in a sense a by-path for the oil to its regular circuit through the bearings, the question arises as to whether there is any possibility of this by-path interfering with the proper



*Truck type of M. I. C. oil purifier*

lubrication of the bearings. For instance, the case might be imagined where a hole of considerable size might develop in one of the filtering elements, which would allow the oil to pass through the purifier without encountering any appreciable resistance, with the result that the pressure on the oil to the bearings would be reduced to a very low value. This eventuality has been fully considered and has been provided against by placing an adjustable check valve in the inlet to the purifier. Before the oil can enter it must overcome the pressure on this check valve, and even if the purifier should be rendered inoperative in the manner described, the normal operation of the lubricating system would not be interfered with.

As designed for the Ford car, which has no oil pump, the system comprises a gear type of oil pump in addition to the purifier proper. Pump, pulley and purifier are



*Oil purifier mounted on forward side of dash on passenger car*

mounted on a stamped steel bracket which fastens to the engine under the water inlet ell and over a cap screw at the forward end of the motor casting, the pulley automatically positioning itself firmly against the fan belt, by which it is driven.

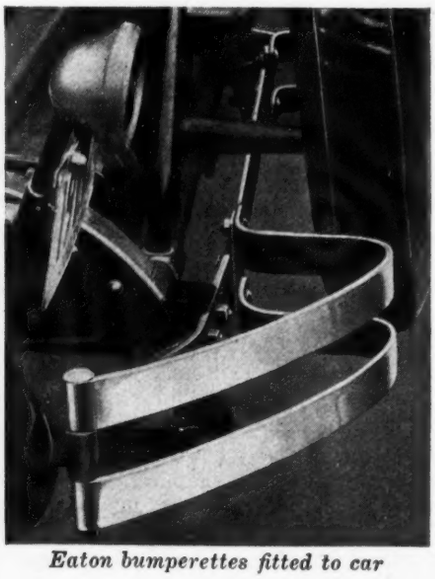
The filter unit is ordinarily held in position on the forward side of the dash by means of a mounting bracket, into which it slides sideways. A replacement can be made in five minutes, it is claimed.

The M. I. C. oil purifier has been adopted as standard equipment on the Chrysler car.

## New Form of Rear Protection for Cars

A SPECIAL form of protection for the rear, known as Eaton bumperettes, have just been announced by the Bumper Division of the Eaton Axle & Spring Co. They may be described as two segments of a bumper which, when installed, protect the rear fenders.

These bumperettes, it is claimed, are set 8 to 10 in. nearer to the car than the ordinary bumper, making it easier to get at spare tires, trunk, luggage deck and rear grease cups, and to jack up the rear wheels, while less space is required for parking. The bumperettes are made of chrome nickel steel and braced by a broad connecting bar which helps to distribute any blow received at one side and holds the bumperettes in alignment.



*Eaton bumperettes fitted to car*

# Profits Per Car and Per Dealer Decline While Volume Grows, Collins Points Out

NEW YORK, Jan. 9—Statistics showing that the dollar value of automotive products had not kept pace with the increase in production since 1919 were presented by J. H. Collins of the Class Journal and Chilton companies to prominent executives representing all branches of the industry at the annual show-week luncheon of the Chilton Co., given at the Commodore yesterday. Mr. Collins's address was made graphic by the use of charts.

He pointed out that while there had been an increase of 108 per cent in the production of passenger cars in 1923 as compared with 1919, the dollar value had increased only 40 per cent. In the case of trucks there had been an increase of 18 per cent in the number of units, but a decline of 22 per cent in the dollar value. He contended this demonstrated that the industry has not grown at a dangerous rate.

Other manufacturers have maintained their percentage of profit per car on a list price basis more consistently than Ford. The figures were:

| | 1919 | 1920 | 1922 | 1923 |
|---|---|---|---|---|
| Ford ..... | 17% | 16% | 16% | 9% |
| Other Makers.. | 14% | 13% | 11% | 11% |

THIS shows a net decline of 24 per cent in Ford profits and 20 per cent in the prices of other manufacturers. Mr. Collins asked whether or not the time had arrived to consider the importance of maintaining profits at a higher level. The industry already is established on a quantity basis but must keep up its rate of profit.

Getting into the dealer question, Mr. Collins showed that there were 8141 Ford dealers in 1919 and 10,407 in 1923, an increase of 27.7 per cent, while the dealers representing all other makers had increased from 24,476 in 1919 to 34,842 in 1923, a gain of 44.1 per cent. It was significant, however, that while the average car sales per Ford dealer in 1919 amounted to $50,173, they had risen to $76,718, an increase of 52 per cent, in 1923, while the average car sales for all other dealers in 1919 were $58,685 and had fallen to $54,798, a decrease of 8 per cent in 1923. Ford sales per dealer increased 15 per cent last year as compared with 1922 and for other dealers 12 per cent.

In contrast, Mr. Collins showed that the average sales per dealer in all automotive products had increased from $62,036 in 1919 to $92,738 in 1923. He took the position that high-class dealers had been penalized in their operations by the large number of mediocre dealers in the field who stay in business a few months and then disappear. This brings all automotive vehicle merchandising down to a lower level. This raised the question, he said, of whether or not there are too many trade units in the field.

RETAIL sales of all automotive products approximated $4,000,000,000 in 1919 and $6,000,000,000 in 1923. The most striking part of the increase has been in the field of maintenance and operation with a gain of 90.7 per cent in the sale of parts and accessories. Mr. Collins asserted that the question of replacement equipment sales is a live one, therefore, for car makers. He asked whether they should not educate their dealers to a comprehension of the prospect for profits in this field rather than exclusive dependence upon the sale of new cars. He added that it points the way to profits for parts manufacturers.

Mr. Collins asserted that the keenest battle for business in the future will be in the $1,000 or under price class. As a basis for this contention he pointed out that four-fifths of all units sold in 1923 were in this class, while the proportion in 1922 was only two-thirds. This was the greatest percentage gain ever shown in a single year in this price class. Out of a total passenger car production of approximately 3,625,000 last year 2,791,000 were in this price class. While Ford greatly increased his output last year he did not quite hold his own on a percentage basis in this class, inasmuch as he had 64 per cent of the total in 1922 and only 59 per cent in 1923.

It was the opinion of Mr. Collins that estimates of the probable replacement market have been somewhat too high. He estimated that replacement sales in 1922 amounted to 950,000 units and in 1923 to 1,062,000, with a probable total of 1,050,000 for 1924. He pointed out that the theoretical scrappage is considerably different than the actual scrappage, although he believed the average life of a car would be shorter in the future than in the past.

TAKING up the question of factory production capacity, Mr. Collins estimated that at the beginning of 1923 the country had facilities for turning out 4,300,000 motor vehicles annually under ideal operating conditions, while at the beginning of the present year there had been an increase of about 30 per cent, bringing the theoretical capacity up to 5,600,000.

He emphasized that present prices are based on capacity operation and that with a larger productive capacity it would be impossible to reduce output materially this year without a substantial increase in prices because price reductions must come from manufacturing economies rather than out of profits.

# 15,281,295 Cars and Trucks Registered in United States

**Astounding total exceeds highest expectations by nearly a million. Gain of 2,916,918 over 1922 is increase of 23.6 per cent. One car for every 7.2 persons. New models and late fall give unusual impetus to sales. Fees near $190,000,000.**

By Norman G. Shidle

MOTOR VEHICLE registration in the United States had reached the astounding total of 15,281,295 on Dec. 31, 1923. Surpassing by nearly a million the most optimistic estimates previously made, this high mark is 2,916,918 ahead of 1922, a gain of 23.6 per cent. There is now one motor vehicle for every 7.2 persons in the country. Car and truck owners paid into State treasuries last year approximately $190,000,000 in automobile fees and taxes. Motorcycle registrations dropped again, as they have done consistently for the last five years, and the 1923 total was 171,568.

The relation between car and truck registrations remains practically the same as last year, commercial vehicles comprising about 11 per cent of the total. Tremendous strides have been made in registrations since July 1, as the mid-year total topped the 1922 figures by only 683,751. The relatively large gains recorded in the last six months may be partly statistical, but the increase is so great that it cannot be explained away entirely by this factor.

The very late fall probably stimulated buying materially, resulting in an unusually large number of cars going into service in the last half of the year. This movement was given greater impetus by the introduction of many entirely new models in preparation for the 1924 selling season.

The interest which these new jobs have excited on the part of the public cannot be denied. Four-wheel brakes and balloon tires have struck the public fancy and attracted unusual attention from prospective buyers. The crowds who are flocking out to the Bronx Armory for the New York show simply furnish additional evidence of the popular appeal made by the recent products of the industry. These undoubtedly have had a large part in pushing the registration total to hitherto unheard of heights.

### Four States Over 1,000,000

Four States now boast a motor vehicle population in excess of 1,000,000. One year ago New York was the only commonwealth which had passed this mark. California, Ohio and Pennsylvania are the other three States which have entered the charmed circle. All parts of the country have contributed materially to the new record, registration gains ranging all the way from 3053 in Nevada up to 234,888 in Pennsylvania.

No major changes have taken place in the order of the States listed according to registration totals. Only one shift has taken place in the first ten, Indiana having slipped ahead of Iowa and taken eighth position. At the other end of the ladder a similar condition prevails. Utah, which last year was eighth from the bottom, has passed Idaho and moved up one peg. Otherwise the last ten on the list remain in the positions they occupied twelve months ago.

When the 1922 figures were compiled, 18 States had less than 100,000 cars and trucks in operation, but only ten are under the century mark today. Ten States are well above 500,000. The five leaders in order of vehicle population are:

| | |
|---|---|
| New York | 1,214,090 |
| California | 1,093,660 |
| Ohio | 1,072,750 |
| Pennsylvania | 1,064,625 |
| Illinois | 969,092 |

The striking character of the 1923 figures can be understood when it is realized that the percentage gain over the previous year is greater than at any other time since 1919. The actual gain, of course, is far ahead of any ever recorded in the history of the industry. The percentage increase is remarkable because a constantly decreasing *rate of growth* was to be expected as the actual totals mounted.

### Gains Difficult to Explain

Several possible explanations of the tremendous increase have been given above, but the upward movement has been so much greater than anyone expected that the phenomena will be a subject for interesting speculation and discussion for some time to come.

Southern States again contributed the largest percentage gains in registrations, seven of the first ten in the percentage list being in this group. Rhode Island, the leader, shows an increase over last year of 76 per cent. This figure is so high as to render doubtful its accuracy, despite the fact that the information concerning this state was obtained from the most accurate data available at this time. A complete check of all of the figures will be made as soon as final returns have been compiled in every State and the revised totals will be published in the Statistical Issue of AUTOMOTIVE INDUSTRIES, Feb. 21, 1924. No changes of importance are to be expected, however, as the present statistics are accurate within a very few per cent.

The automotive progress of the South is emphasized further by the fact that Georgia, which had the lowest percentage gain of any of the states below the Mason-Dixon line, forged ahead of its 1922 total by 19.4 per cent.

Industrial states had smaller percentage gains than did the Southern group, but the bottom rungs of the percentage ladder are held by the agricultural areas. Reading from the bottom up, the following states appear:

South Dakota, North Dakota, Nebraska, Iowa, Missouri and Kansas. In each of these cases, however, the gain was greater than that recorded a year ago.

### Increases Reflect Business Condition

The list of percentage gains reflects rather accurately what might have been expected in automobile sales as a result of the economic condition of the country during the past twelve months. 1923 has been a period of prosperity throughout the South and marked progress has been made in all lines. Manufacturing areas, too, have been in good condition, but the very large number of vehicles already in these places naturally would keep percentage increases down. The farmer has had more economic difficulties than anyone else and his relatively low buying power is reflected in the figures.

Nevertheless the fact remains that very substantial gains in car and truck use have been made in every section of the United States and that the registration figures justify abundantly the huge production of 1923. The cars were needed and they were bought.

The most impressive actual gains were made in the high registration states, as was to be expected. Pennsylvania, California, Ohio, New York and Illinois stand at the top of the numerical increase list, as they do in total number of vehicles registered. The order is not quite the same, however, as the Keystone state holds the 1923 record for actual gain over 1922 totals. To achieve this honor it displaced New York and California, which held first and second positions respectively a year ago. Ohio, too, passed the Empire state, while Illinois remained in fifth place.

Nine states put into operation more than 100,000 vehicles in addition to those used in 1922, while only seven failed to show a gain in excess of 10,000.

Trucks comprise a far more important part of total vehicle registration in some states than in others. A striking contrast, for example, is shown between the relative proportions of passenger and commercial vehicles in New York and California, the two leading states. Here is how the records stood at the end of 1923:

| Passenger Cars | Trucks | Trucks, Per Cent of Total |
|---|---|---|
| NEW YORK | | |
| 966,116 | 247,974 | 20.4 |
| CALIFORNIA | | |
| 1,050,265 | 43,395 | 3.9 |

California, although second in total number of motor vehicles, leads in number of passenger cars by some 84,000, being the only state to register more than 1,000,000 vehicles of this type. In the New York figures, motor buses have been counted as trucks and taxicabs as passenger cars.

Similar differences in the relative proportion of cars and trucks may be found in various other instances. While commercial vehicles comprise about 11 per cent of total registrations for the country as a whole, the percentage holds approximately true for particular states in only about 20 instances.

It is important that these variations be recognized in any study which may be made of sales trends and marketing probabilities. As in most statistical work, it is unsafe to apply a general average to a particular case and expect to get highly accurate results. The trend of passenger car and truck sales in each state has to be examined as an individual problem if proper conclusions are to be reached.

## Registration of Motor Vehicles

| States | Total Registration of Cars and Trucks | Passenger Cars | Trucks | Motorcycles | Total Fees |
|---|---|---|---|---|---|
| Alabama | 126,642 | 112,797 | 13,845 | 599 | $1,532,614 |
| Arizona | 48,386 | 41,852 | 6,534 | 388 | 281,584 |
| Arkansas | 111,946 | 100,758 | 11,188 | 300 | 1,698,000 |
| California | 1,093,660 | 1,050,265 | 43,395 | 14,654 | 10,548,386 |
| Colorado | 189,500 | 176,000 | 13,500 | 2,500 | 1,125,500 |
| Connecticut | 191,647 | 156,747 | 34,900 | 2,500 | 4,329,269 |
| Delaware | 29,500 | 24,000 | 5,500 | 400 | 625,000 |
| District of Columbia | 103,171 | 94,787 | 8,384 | 2,510 | 445,712 |
| Florida | 160,000 | 130,000 | 30,000 | 1,200 | 1,963,000 |
| Georgia | 173,794 | 151,325 | 22,469 | 1,011 | 2,156,406 |
| Idaho | 62,350 | 56,950 | 5,400 | 670 | 913,440 |
| Illinois | 969,092 | 847,005 | 122,087 | 7,612 | 9,653,795 |
| Indiana | 582,882 | 509,821 | 73,061 | 5,000 | 3,993,699 |
| Iowa | 572,611 | 536,296 | 36,315 | 3,034 | 8,825,962 |
| Kansas | 375,594 | 349,038 | 26,556 | 1,950 | 203,158 |
| Kentucky | 196,110 | 175,869 | 20,241 | 1,014 | 2,680,580 |
| Louisiana | 138,500 | 117,500 | 21,000 | 350 | 2,200,000 |
| Maine | 106,847 | 91,055 | 15,792 | 1,558 | 1,659,349 |
| Maryland | 206,450 | 193,850 | 12,600 | 4,850 | 3,452,720 |
| Massachusetts | 566,150 | 482,645 | 83,505 | 11,733 | 6,989,633 |
| Michigan | 728,327 | 655,017 | 73,310 | 4,163 | 8,845,575 |
| Minnesota | 448,187 | 399,404 | 48,783 | 3,220 | 7,244,490 |
| Mississippi | 103,850 | 93,850 | 10,000 | 114 | 1,166,923 |
| Missouri | 450,800 | 405,720 | 45,080 | 2,000 | 4,800,000 |
| Montana | 73,827 | 65,448 | 8,379 | 374 | 729,678 |
| Nebraska | 285,488 | 258,941 | 26,547 | 1,605 | 3,350,640 |
| Nevada | 15,700 | 12,400 | 3,300 | 90 | 155,000 |
| New Hampshire | 59,571 | 52,583 | 6,988 | 1,987 | 1,447,000 |
| New Jersey | 418,212 | 329,534 | 88,678 | 8,779 | 7,927,439 |
| New Mexico | 31,737 | 28,564 | 3,173 | 172 | 280,000 |
| New York | 1,214,090 | 966,116 | 247,974 | 22,981 | 19,858,572 |
| North Carolina | 247,700 | 226,500 | 21,200 | 1,300 | 6,642,503 |
| North Dakota | 109,244 | 105,957 | 3,287 | 645 | 760,444 |
| Ohio | 1,072,750 | 924,832 | 147,918 | 15,300 | 9,500,000 |
| Oklahoma | 307,000 | 288,424 | 18,576 | 823 | 3,380,000 |
| Oregon | 166,403 | 152,967 | 13,436 | 3,140 | 4,069,550 |
| Pennsylvania | 1,064,625 | 899,697 | 164,928 | 19,817 | 15,828,494 |
| Rhode Island | 116,940 | 93,303 | 23,637 | 1,800 | 1,440,257 |
| South Carolina | 128,656 | 116,537 | 12,119 | 561 | 902,608 |
| South Dakota | 131,707 | 121,152 | 10,555 | 466 | 2,000,000 |
| Tennessee | 165,000 | 146,500 | 18,500 | 800 | 2,200,000 |
| Texas | 688,899 | 618,208 | 70,691 | 3,346 | 5,647,663 |
| Utah | 66,025 | 57,460 | 8,565 | 766 | 834,225 |
| Vermont | 52,776 | 49,420 | 3,356 | 839 | 938,860 |
| Virginia | 217,200 | 188,200 | 29,000 | 1,800 | 2,500,000 |
| Washington | 258,264 | 221,164 | 37,100 | 3,560 | 4,200,000 |
| West Virginia | 157,926 | 150,472 | 7,454 | 1,353 | 2,608,508 |
| Wisconsin | 455,714 | 422,714 | 33,000 | 5,643 | 4,968,053 |
| Wyoming | 39,845 | 35,295 | 4,550 | 291 | 415,000 |
| Total | 15,281,295 | 13,484,939 | 1,796,356 | 171,568 | $189,919,289 |

### Registration of Cars and Trucks, December 31, 1923

| | |
|---|---|
| New York | 1,214,090 |
| California | 1,093,660 |
| Ohio | 1,072,750 |
| Pennsylvania | 1,064,625 |
| Illinois | 969,092 |
| Michigan | 728,327 |
| Texas | 688,899 |
| Indiana | 582,882 |
| Iowa | 572,611 |
| Massachusetts | 566,150 |
| Wisconsin | 455,714 |
| Missouri | 450,800 |
| Minnesota | 448,187 |
| New Jersey | 418,212 |
| Kansas | 375,594 |
| Oklahoma | 307,000 |
| Nebraska | 285,488 |
| Washington | 258,264 |
| North Carolina | 247,700 |
| Virginia | 217,200 |
| Maryland | 206,450 |
| Kentucky | 196,110 |
| Connecticut | 191,647 |
| Colorado | 189,500 |
| Georgia | 173,794 |
| Oregon | 166,403 |
| Tennessee | 165,000 |
| Florida | 160,000 |
| West Virginia | 157,926 |
| Louisiana | 138,500 |
| South Dakota | 131,707 |
| South Carolina | 128,656 |
| Alabama | 126,642 |
| Rhode Island | 116,940 |
| Arkansas | 111,946 |
| North Dakota | 109,244 |
| Maine | 106,847 |
| Mississippi | 103,850 |
| District of Columbia | 103,171 |
| Montana | 73,827 |
| Utah | 66,025 |
| Idaho | 62,350 |
| New Hampshire | 59,571 |
| Vermont | 52,776 |
| Arizona | 48,386 |
| Wyoming | 39,845 |
| New Mexico | 31,737 |
| Delaware | 29,500 |
| Nevada | 15,700 |
| Total | 15,281,295 |

### Percentage Gains in Registration, 1922-1923

| State | Cent |
|---|---|
| Rhode Island | 76.0 |
| Alabama | 40.6 |
| West Virginia | 40.1 |
| Florida | 38.2 |
| North Carolina | 35.6 |
| Louisiana | 35.6 |
| Mississippi | 34.6 |
| South Carolina | 34.0 |
| Utah | 34.3 |
| Michigan | 33.2 |
| Texas | 30.9 |
| Wyoming | 30.0 |
| Arkansas | 29.6 |
| Virginia | 28.5 |
| Pennsylvania | 28.3 |
| Kentucky | 27.3 |
| Arizona | 27.2 |
| California | 26.8 |
| Massachusetts | 25.9 |
| Ohio | 24.8 |
| Maryland | 24.7 |
| New Mexico | 24.6 |
| Nevada | 24.2 |
| Indiana | 24.0 |
| Oregon | 23.9 |
| Connecticut | 23.9 |
| New Hampshire | 23.4 |
| Illinois | 23.2 |
| Oklahoma | 23.0 |
| New Jersey | 22.4 |
| Tennessee | 21.5 |
| New York | 21.1 |
| District of Columbia | 20.8 |
| Vermont | 20.3 |
| Delaware | 20.1 |
| Georgia | 19.4 |
| Montana | 17.8 |
| Minnesota | 17.7 |
| Wisconsin | 17.4 |
| Washington | 16.9 |
| Colorado | 16.7 |
| Idaho | 15.7 |
| Maine | 15.5 |
| Kansas | 14.7 |
| Missouri | 14.7 |
| Iowa | 14.5 |
| Nebraska | 11.2 |
| North Dakota | 10.3 |
| South Dakota | 5.1 |
| United States | 23.6 |

### Numerical Gain in Car and Truck Registration, 1922-1923

| | |
|---|---|
| Pennsylvania | 234,888 |
| California | 231,855 |
| Ohio | 213,246 |
| New York | 211,797 |
| Illinois | 182,902 |
| Texas | 162,661 |
| Michigan | 149,347 |
| Massachusetts | 116,312 |
| Indiana | 112,943 |
| New Jersey | 76,586 |
| Iowa | 72,463 |
| Wisconsin | 67,670 |
| Minnesota | 67,630 |
| North Carolina | 65,150 |
| Missouri | 57,831 |
| Oklahoma | 57,341 |
| Rhode Island | 50,474 |
| Kansas | 48,400 |
| Virginia | 48,200 |
| West Virginia | 45,163 |
| Florida | 44,109 |
| Kentucky | 42,089 |
| Maryland | 40,826 |
| Washington | 37,307 |
| Connecticut | 36,972 |
| Alabama | 36,590 |
| Louisiana | 36,216 |
| South Carolina | 32,678 |
| Oregon | 32,174 |
| Tennessee | 29,284 |
| Nebraska | 28,834 |
| Georgia | 28,210 |
| Colorado | 27,172 |
| Mississippi | 26,849 |
| Arkansas | 25,521 |
| District of Columbia | 17,746 |
| Utah | 16,869 |
| Maine | 14,308 |
| New Hampshire | 11,278 |
| Montana | 11,178 |
| Arizona | 10,352 |
| North Dakota | 10,192 |
| Wyoming | 9,208 |
| Vermont | 8,895 |
| Idaho | 8,476 |
| South Dakota | 6,469 |
| New Mexico | 6,264 |
| Delaware | 4,940 |
| Nevada | 3,053 |
| Total gain | 2,916,918 |

The differences in this case probably are due to a variety of causes, among which are topography of the country, motor vehicle tax laws, economic character of communities and, in some instances, perhaps, a variation in methods of classifying vehicles when they are registered.

A real need for uniformity in registration methods still exists, as it has in the past. Practice in individual states is constantly improving, and the intelligence and accuracy with which registration data are compiled is increasing every year. Individual advance, however, has not facilitated in any way the difficulty of properly and accurately combining the registration data gathered from the forty-eight states. There is no uniformity of nomenclature or definition of terms so far as the various states are concerned. Each is literally a law unto itself and registration information, accurate as to detail, can be obtained only at the cost of persistent effort and careful study of constantly changing methods.

Motorcycle registrations dropped off about 22,000, falling from 193,495 at the end of 1922 to 171,568 on Dec. 31, 1923. The number of two-wheelers in use has fallen every year since 1919. A trend curve drawn over a period of years for motorcycle registrations does not point in an encouraging direction.

The very general character of the big registration increase is indicated by the fact that practically every state made a larger percentage gain than last year, although it is true that some states made relatively much larger increases than others.

Thirty-five states this year increased more than 20 per cent over the 1922 total, while last year only 13 States had gone ahead of the 1921 figures by 20 per cent or more. Last year 11 states had less than a 10 per cent gain over the previous year, while the present statistics show only one state below that mark.

# Motor Vehicle Registration 1912 to 1923

| | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | 1922 | 1923 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 3,385 | 5,435 | 8,078 | 11,925 | 21,636 | 32,873 | 46,171 | 58,898 | 74,637 | 82,343 | 90,052 | 126,642 |
| Arizona | 1,624 | 3,098 | 5,040 | 7,318 | 12,124 | 19,890 | 23,905 | 28,979 | 34,559 | 35,049 | 38,034 | 48,386 |
| Arkansas | 2,250 | 3,000 | 5,642 | 8,021 | 15,000 | 28,693 | 41,458 | 49,450 | 59,082 | 67,446 | 86,425 | 111,946 |
| California | 88,699 | 60,000 | 123,516 | 163,795 | 232,440 | 306,916 | 364,800 | 477,450 | 568,892 | 673,830 | 861,806 | 1,093,660 |
| Colorado | 8,950 | 13,135 | 17,756 | 27,568 | 43,296 | 66,850 | 83,630 | 104,865 | 128,951 | 145,739 | 162,328 | 189,500 |
| Connecticut | 24,101 | 27,189 | 33,009 | 43,985 | 61,855 | 85,724 | 92,605 | 109,651 | 119,134 | 137,526 | 154,675 | 191,647 |
| Delaware | 1,732 | 2,350 | 3,060 | 4,657 | 7,102 | 10,700 | 12,955 | 16,152 | 18,300 | 21,413 | 24,560 | 29,500 |
| Dist. of Columbia | 1,732 | 2,373 | 4,833 | 8,009 | 13,118 | 15,493 | 30,490 | 35,400 | 39,712 | 61,745 | 85,425 | 103,171 |
| Florida | 1,749 | 2,372 | 3,368 | 10,850 | 20,718 | 27,000 | 54,186 | 55,400 | 73,914 | 97,837 | 115,891 | 160,000 |
| Georgia | 19,120 | 18,500 | 20,916 | 25,671 | 47,579 | 70,357 | 99,800 | 127,326 | 144,422 | 131,942 | 145,584 | 173,794 |
| Idaho | 2,500 | 2,173 | 3,346 | 7,071 | 12,999 | 24,731 | 32,289 | 42,220 | 50,873 | 51,264 | 53,874 | 62,350 |
| Illinois | 68,073 | 94,656 | 131,140 | 180,832 | 248,429 | 340,292 | 389,620 | 478,438 | 568,759 | 670,434 | 786,190 | 969,092 |
| Indiana | 54,334 | 47,000 | 66,400 | 96,915 | 139,317 | 192,192 | 227,160 | 277,255 | 332,707 | 400,342 | 469,939 | 582,882 |
| Iowa | 47,188 | 75,088 | 112,134 | 152,134 | 198,602 | 254,317 | 278,313 | 363,857 | 437,300 | 460,528 | 500,148 | 572,611 |
| Kansas | 22,000 | 34,366 | 49,374 | 72,520 | 112,122 | 159,343 | 189,163 | 227,752 | 265,396 | 291,309 | 327,194 | 375,594 |
| Kentucky | 5,147 | 7,210 | 11,746 | 19,500 | 31,700 | 47,416 | 65,870 | 90,641 | 112,685 | 126,371 | 154,021 | 196,110 |
| Louisiana | 7,000 | 7,200 | 12,000 | 11,380 | 17,000 | 28,394 | 40,000 | 51,000 | 66,000 | 80,500 | 102,284 | 138,500 |
| Maine | 7,743 | 10,570 | 15,700 | 21,545 | 30,972 | 41,499 | 40,372 | 53,425 | 62,907 | 77,527 | 92,539 | 106,847 |
| Maryland | 10,487 | 14,254 | 20,213 | 31,047 | 44,245 | 60,943 | 74,666 | 95,634 | 116,341 | 140,572 | 165,624 | 206,450 |
| Massachusetts | 50,132 | 62,660 | 77,246 | 102,633 | 136,809 | 174,274 | 193,497 | 247,183 | 304,631 | 360,732 | 449,838 | 566,150 |
| Michigan | 39,579 | 54,366 | 76,389 | 114,845 | 160,052 | 247,006 | 262,125 | 325,813 | 412,717 | 477,037 | 578,980 | 728,327 |
| Minnesota | 29,000 | 37,800 | 67,862 | 93,269 | 46,000 | 54,009 | 204,458 | 259,743 | 309,569 | 328,700 | 380,557 | 448,187 |
| Mississippi | 2,895 | 3,000 | 5,964 | 9,669 | 25,000 | 36,600 | 48,400 | 45,030 | 63,484 | 65,139 | 77,001 | 103,850 |
| Missouri | 24,379 | 38,140 | 54,468 | 76,462 | 103,587 | 147,528 | 188,040 | 244,363 | 296,919 | 346,437 | 392,969 | 450,800 |
| Montana | 2,000 | 5,686 | 10,172 | 14,499 | 24,440 | 42,696 | 51,037 | 59,325 | 60.646 | 58,785 | 62.649 | 73.827 |
| Nebraska | 33,861 | 25,617 | 40,929 | 59,140 | 100,534 | 148,101 | 175,409 | 192,000 | 223,000 | 238,704 | 256,654 | 285,488 |
| Nevada | 900 | 1,131 | 1,487 | 2,009 | 4,919 | 7,160 | 8,159 | 9,305 | 10,464 | 10,819 | 12,647 | 15,700 |
| New Hampshire | 5,764 | 7,420 | 9,571 | 13,499 | 17,508 | 22,267 | 24,817 | 31,625 | 34,680 | 42,039 | 48,293 | 59,571 |
| New Jersey | 43,056 | 48,892 | 60,247 | 78,232 | 104,341 | 134,964 | 155,519 | 190,873 | 227,737 | 272,994 | 341,626 | 418,212 |
| New Mexico | 911 | 1,721 | 2,945 | 5,100 | 8,228 | 8,457 | 15,000 | 18,077 | 22,109 | 24,703 | 25,473 | 31,737 |
| New York | 107,262 | 134,405 | 169,966 | 234,032 | 317,866 | 411,567 | 463,758 | 571,662 | 669,290 | 812,031 | 1,002,293 | 1,214,090 |
| North Carolina | 6,178 | 10,000 | 14,677 | 21,000 | 33,904 | 55,950 | 72,313 | 109,017 | 140,860 | 148,684 | 182,550 | 247,700 |
| North Dakota | 8,997 | 13,075 | 15,701 | 24,908 | 40,446 | 62,993 | 71,627 | 82,885 | 90,840 | 92,644 | 99,052 | 109,244 |
| Ohio | 63,066 | 86,054 | 122,504 | 181,332 | 252,431 | 346,772 | 412,775 | 511,031 | 615,397 | 720,632 | 859,504 | 1,072,750 |
| Oklahoma | 6,524 | 7,934 | 13,500 | 25,032 | 52,718 | 100,199 | 121,500 | 144,500 | 204,300 | 221,300 | 249,659 | 307,000 |
| Oregon | 10,165 | 13,957 | 16,447 | 23,585 | 33,917 | 48,632 | 63,324 | 83,332 | 103,790 | 118,325 | 134,299 | 166,403 |
| Pennsylvania | 59,357 | 76,178 | 112.854 | 160,137 | 230,578 | 325,153 | 394,186 | 482,117 | 570,164 | 689,589 | 829,737 | 1,064,625 |
| Rhode Island | 8,565 | 10,294 | 12,331 | 16,362 | 21,406 | 37.046 | 36,218 | 44,833 | 50,375 | 54,957 | 66,466 | 116,940 |
| South Carolina | 10,000 | 11,500 | 14,500 | 15,000 | 19,000 | 39,527 | 55,492 | 70,143 | 92,818 | 90,546 | 95,978 | 128,656 |
| South Dakota | 14.481 | 14,578 | 20,929 | 28,784 | 44,271 | 67,158 | 90.521 | 104,628 | 120,395 | 119.274 | 125.238 | 131.707 |
| Tennessee | 12,490 | 14,860 | 19,769 | 22,738 | 30,000 | 48,000 | 63,000 | 80,422 | 101,852 | 117,025 | 135,716 | 165,000 |
| Texas | 35,187 | 54,362 | 64,732 | 90,000 | 197,687 | 213,334 | 251.118 | 331,310 | 427,693 | 467,616 | 526,238 | 688,899 |
| Utah | 2.576 | 4,021 | 2,253 | 9,177 | 13,507 | 24,076 | 32.273 | 35,236 | 42,578 | 47,523 | 49,156 | 66,025 |
| Vermont | 4.283 | 5,918 | 8,256 | 11,499 | 15,671 | 20.369 | 22,655 | 26,807 | 31,625 | 36,965 | 43,881 | 52,776 |
| Virginia | 5,760 | 9,022 | 14,002 | 21.357 | 35,425 | 55,000 | 72.228 | 94,120 | 134,000 | 141.000 | 169,000 | 217,200 |
| Washington | 13,990 | 24,178 | 30,253 | 38,823 | 60,734 | 91.337 | 117.278 | 148,775 | *173,920 | 185,359 | 220,957 | 258.264 |
| West Virginia | 5 349 | 5,088 | 6,159 | 13.279 | 20.571 | 31,300 | 38.750 | 50.203 | 78.862 | 93,894 | 112.763 | 157.923 |
| Wisconsin | 24.578 | 34.646 | 53,161 | 79.791 | 115,637 | 164,531 | 196.844 | 236,981 | 293,298 | 341.841 | 388.044 | 455,714 |
| Wyoming | 1,300 | 1,584 | 2,428 | 3,976 | 7,125 | 12,523 | 16,200 | 21,371 | 23,926 | 26,619 | 30,637 | 39,845 |
| Totals | 1,010,399 | 1,248,056 | 1,768,963 | 2,494,912 | 3,584,567 | 4,992,152 | 6,105,974 | 7,596,503 | 9,206,510 | 10,505,630 | 12,364,377 | 15,281,295 |

Fifteen times as many cars and trucks are registered in the United States today as there were in 1912; about twice as many as in 1919. The relatively great size of this year's increase is made clear by the following list, which shows the increase in registrations each year since 1913:

| | |
|---|---|
| 1913 | 237,657 |
| 1914 | 520,907 |
| 1915 | 725,949 |
| 1916 | 1,089,655 |
| 1917 | 1,407,585 |
| 1918 | 1,113,822 |
| 1919 | 1,490,529 |
| 1920 | 1,610,007 |
| 1921 | 1,299,120 |
| 1922 | 1,858,747 |
| 1923 | 2,916,918 |

Fees paid by motorists increased last year more rapidly than did the number of vehicles put into operation. With final figures not yet in, 1923 automobile fees top the 1922 total by $49,000. This records an increase of 32.4 per cent as against the 23.6 per cent gain in registrations. In 1922 the fees collected averaged $12.25 per vehicle, while in 1923 the average was about $12.50 per vehicle.

A gradual increase in the fees per vehicle has been going on for some time and automobile owners are being asked to pay more individually for the operation of their cars every year.

The constantly growing total of motor vehicle license fees indicates that the users of automobiles and trucks are carrying their share of the country's tax burden.

## MOTORCYCLE REGISTRATIONS—1919 TO 1923

| | 1919 | 1920 | 1921 | 1922 | 1923 |
|---|---|---|---|---|---|
| Ala. | 1,103 | 1,035 | 805 | 638 | 599 |
| Ariz. | 596 | 542 | 440 | 425 | 388 |
| Ark. | ** | ** | 192 | 237 | 300 |
| Cal. | 28,028 | 20,047 | 17,603 | 16,300 | 14 654 |
| Colo. | 3,636 | 3,364 | 2,868 | 2,770 | 2.500 |
| Conn. | 4,495 | 6,543 | 5,589 | 4,386 | 2.500 |
| Del. | 699 | 674 | 541 | 427 | 400 |
| D. C. | 2,412 | 519 | 2,487 | 2,494 | 2 510 |
| Fla. | 1,412 | 1,275 | 1,296 | 1,456 | 1,200 |
| Ga. | 1,722 | 1,688 | 1,338 | 1,000 | 1,011 |
| Idaho | 731 | 764 | 744 | 703 | 670 |
| Ill. | 10,920 | 10,597 | 7,104 | 8,156 | 7,612 |
| Ind. | 8,995 | 8,823 | 7,524 | 6,598 | 5,000 |
| Iowa | 3,035 | 4,000* | 3,897 | 3,569 | 3,034 |
| Kan. | 3,589 | 2,972 | 2,271 | 2,315 | 1,950 |
| Ky. | 1,503 | 1,543 | 1,185 | 1,042 | 1,014 |
| La. | 490* | 500 | 498 | 509 | 350 |
| Me. | 1,608 | 1,566 | 1,525 | 1,321 | 1,558 |
| Md. | 5,872 | 7,332 | 7,847 | 7,579 | 4,850 |
| Mass. | 13,698 | 15,143 | 12,048 | 11,675 | 11,733 |
| Mich. | 7,875 | 8,011 | 6,195 | 5,163 | 4,163 |
| Minn. | 6,389 | 1,158 | 3,500 | 3,240 | 3,220 |
| Miss. | 120* | 194 | 375 | 109 | 114 |
| Mo. | 4,131 | 3,954 | 3,609 | 2,792 | 2,000 |
| Mont. | 847 | 675 | 472 | 397 | 374 |
| Neb. | 2,500 | 2,000 | 1,866 | 1,856 | 1,605 |
| Nev. | 125 | 141 | 130 | 112 | 90 |
| N. H. | 2,632 | 2,542 | 2,358 | 1,880 | 1,987 |
| N. J. | 11,416 | 11,041 | 9,724 | 9,284 | 8,779 |
| N. M. | 200 | 219 | 214 | 163 | 172 |
| N. Y. | 28,561 | 29,453 | 26,998 | 25,175 | 22,981 |
| N. C. | 1,459 | 1,418 | 1,276 | 1,190 | 1,300 |
| N. D. | 901 | 898 | 810 | 766 | 645 |
| Ohio | 20.444 | 26,956 | 23,026 | 21,256 | 15,300 |
| Okla. | 1,310 | 1,320 | 1,013 | 952 | 823 |
| Ore. | 3,570 | 3,516 | 3,164 | 3,206 | 3,140 |
| Pa. | 25,760 | 23,981 | 21,111 | 20,159 | 19,817 |
| R. I. | 2,301 | 2,225 | 1,780 | 1,459 | 1,800 |
| S. C. | 869 | 908 | 756 | 605 | 561 |
| S. D. | 888 | 777 | 682 | 660 | 466 |
| Tenn. | 1,133 | 1,151 | 1,043 | 861 | 800 |
| Texas | 3,990 | 4,293 | 3,905 | 3,410 | 3,346 |
| Utah | 1,185 | 1,114 | 909 | 725 | 766 |
| Vt. | 800 | 946 | 965 | 856 | 839 |
| Va. | 2,520 | 2,233 | 2,200 | 2,200 | 1,800 |
| Wash. | 5.050 | 4,915 | 3,763 | 3,846 | 3,560 |
| W. Va. | 994 | 1,659 | 1,539 | 1,361 | 1,353 |
| Wis. | 7,223 | 8,002 | 6,423 | 5,918 | 5,643 |
| Wyo. | 353 | 327 | 322 | 304 | 291 |
| Total | 240,090 | 234,954 | 207,930 | 193,495 | 171,568 |
| Total | 240,090 | 234,954 | 207,930 | 193,495 | 171,568 |

# Safety and Traffic Important Problems, Say Speakers at "Motor Roadeo"

## Dinner held to provide writers and newspaper men with facts and figures on road questions. Highway educational film shown.

FUNDAMENTAL problems of highway transport were discussed at a "motor roadeo" dinner given by highways and traffic safety committees of the National Automobile Chamber of Commerce at the Plaza Hotel, New York, last Friday evening. The affair was designed primarily to provide writers and newspaper men with information on a subject which has become one of national importance, and in this respect it was an entire success, for it was agreed at the beginning that any question asked would be answered frankly.

Some of the questions taken up were:

"Will they walk? The story of the saturation point."

"Where shall I park my car? A picture of changing cities."

"Have our roads been spurlos versenkt? The effect of motor trucks on highways."

"Lose a minute, save a life. What is being done to prevent highway accidents."

"Who pays? Is it your dollar or mine that builds the road?"

"Who's your neighbor? We used to speak in acres, now we speak in miles."

### Chapin Stresses Safety

Roy D. Chapin, chairman of the highways committee, who presided, said the function of the highway engineer was something greater than merely building roads. Rather they are providing highway transport for the American people. They have tied the roads and vehicles together into units of transportation. The taxpayers of the United States are spending $1,000,000,000 a year for highways, or one-eighth of all the money collected for taxes.

The development of highways, Mr. Chapin added, has presented many problems, one of the most important of which is that of safety, which is becoming more serious every day. The automotive industry has accepted its responsibility for motor vehicles and it will be its earnest endeavor to solve as many of the problems connected with them as is humanly possible by cooperating with every agency concerned.

Mr. Chapin said that an attempt had been made to humanize the questions which would be taken up, because roads always had been an exceedingly dry subject except in wet weather. He first called on Alfred Reeves, general manager of the N. A. C. C., to give a few statistics about motor vehicles.

Mr. Reeves pointed out that the industry is turning out every day 31 miles of cars based on the length of wheelbase. Exports, he said, ought to be 25 per cent of the total production and the foreign business of one or two companies has reached that figure. Reverting to the well-known "saturation point," he declared that no one knows what it is because no one knows the transportation needs of the country. Twenty million motor vehicles have been made by the automotive industry, although there were only four of them in the country in 1896 and one of those in Barnum & Bailey's circus. Twenty per cent of the entire total were made last year.

### Macauley Discusses Traffic

Alvan Macauley, who is devoting much of his time to the traffic planning question, was called upon to answer the question "Where shall I park my car?" He said that parking is only one aspect of city planning. Most streets have not been widened since the days they were laid out to take care of horse drawn vehicles, and the ultimate solution of the question will require an expenditure of hundreds of millions of dollars over a long period of years.

Detroit is beginning to meet the situation by widening Woodward Avenue, which is the direct route to Pontiac. Outside the city limits the highway will be 200 ft. wide with room in the center for two street car tracks and 40-ft. stretches on either side for automobiles. Automobiles must move at something like their maximum speed, Mr. Macauley said, if traffic congestion is to be relieved. In this respect they will follow the course of the railroads, which originally were bound down by strict speed regulations but ultimately were permitted to run trains as fast as they would go.

Decentralization in urban centers will be one solution of traffic congestion. In almost every city, he pointed out, retail shopping centers are springing up because people insist on buying in sections where they can park their cars. He added that because of congestion in the center of Detroit hundreds of residents of that city are coming to New York to do their shopping, using their hotel as a center from which to operate.

### Parking Space Needed

It was pointed out that office buildings removed from the most congested districts are finding plenty of tenants because they provide parking space and also that doctors are moving into outlying districts so that their patients will have room in which to leave their automobiles.

E. J. Mehren, vice-president of the McGraw-Hill Co., wondered if the movement to bring down Federal and State taxes might not react against the continued expenditure of huge sums for highway building. He thought also that the people are beginning to resent the density of street traffic, which makes it constantly more difficult to cross streets.

George M. Graham rejoined that the longer this issue is postponed the easier it will be to meet because the number of pedestrians is constantly diminishing.

State Highway Commissioner Mackall of Maryland was called upon to tell whether or not motor vehicles injure the highways. He replied that they would unless their weights were regulated and told briefly of the experience of Maryland in this respect. Under present conditions all roads in that State are being maintained in as good or better condition than when they were built by use of current funds.

This condition has maintained since 1918, when overloaded trucks caused $600,000 damage to the road between Baltimore and Philadelphia and weight restrictions were adopted. These regulations have worked little hardship on truck operators and since they were applied not a single mile of highway has failed.

Highway Commissioner McDonald of Connecticut spoke briefly on the same subject. He said trucks had done considerable damage to roads in that State built before it was known definitely what traffic to expect, but they have not disrupted the highways. It has been experience that there is a stronger tendency to overload light trucks than heavy ones and that they cause relatively greater damage.

### Highway Finance Is Brosseau's Topic

A. J. Brosseau, in discussing who pays the cost of good roads, pointed out that funds spent for highways are not an expense but an expenditure. More than 60 per cent of all highway funds go for construction and the balance for maintenance. The automobile user will finance maintenance with fees and the roads can be kept as good as they were when built. Road construction is an investment in a profit-making facility which will pay dividends for all time. The saving in the cost of operation of a motor vehicle over a good road is greater than the cost of maintenance, he added.

Mr. Graham, who is chairman of the traffic planning and safety committee, said the industry deeply regretted the large number of accidents but would accept the responsibility and put all its resources back of the efforts being made to reduce the hazards of streets and highways. He explained briefly the plan the committee has adopted for enlisting the support of newspaper city editors in gathering accurate data on the exact causes of accidents in all parts of the country. It is hoped the information collected in this way can be used as the basis for constructive recommendations.

### MacDonald Outlines Federal Plans

T. H. MacDonald, chief of the U. S. Bureau of Public Roads, brought out the fact that the road system is being planned by State and Government officials on an earning capacity basis. Highways are being constructed of such surfaces and in such locations as will render an economic value equal to or exceeding the investment required.

He also noted that 40 per cent of our billion dollar expenditure each year for roads is being devoted to the major or Federal aid system, and that 40 per cent is being paid out for local feeder routes.

The total amount collected from motor vehicles by the Federal Government since the starting of the Federal aid programs in 1917 has amounted to $589,000,000, while the Federal aid road expenditure has been $264,000.000 Thus Mr. MacDonald pointed out as far as the major or Federal aid system, including the money paid by the States, is concerned, the amount taken from general taxation is negligible, and the roads are a permanent asset to the community.

"The motor vehicle," said Mr. MacDonald, "not only through itself but through its potential and true earnings, is more than supporting the highway program."

The gathering saw the first public showing of the highway film, taken under the direction of the U. S. Bureau of Public Roads, the Highway Education Board, the Ford Motor Co. and the National Automobile Chamber of Commerce.

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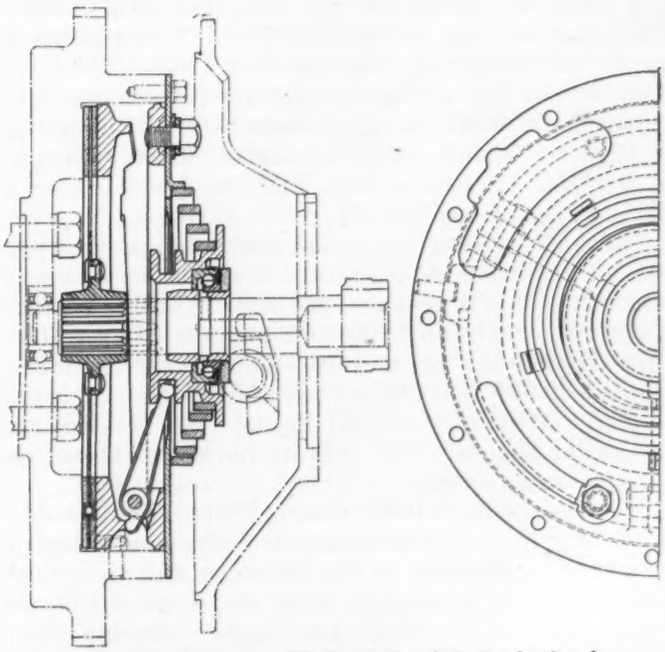
## Borg & Beck Marketing New Design of Clutch

BORG & BECK have made extensive design changes in the new clutch models which they are now producing. The new product is more compact than former designs and employs more pressed metal parts. The floating facings are replaced by facings riveted to each side of the driven member which, except for the hub, is of pressed steel instead of being cast as formerly.

Arrangement of the throwout bearing and sleeve is such that they are moved toward the flywheel to disengage the clutch instead of being moved in the opposite direction as heretofore. This brings the engagement spring outside the pressed steel cover plate, where it is less affected by whatever heat may be generated by slipping the clutch.

By reference to the accompanying drawing it will be seen that, while many of the former Borg & Beck characteristics are retained, such as the multiplying toggle levers and adjustment features, most parts are changed somewhat in form and arrangement. The splined hub of the driven member is of steel and is riveted to the driven plate. The latter is made flat in some models and is cupped in others. Overall length is materially reduced, and this in turn enables the use of a shallower bell housing and reduces the overhang of the gearset from 1 to 2½ in.

Toggle levers are redesigned and are now straight instead of being bent, a feature which also aids in making the design more compact.



*One of the new models of Borg & Beck clutch, showing pressed steel driven member which in some cases is flat and in others cupped*

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## Why Not Reduce Size of Taxicabs?

A VOLUNTEER investigator, who believes that there are altogether too many taxicabs in New York, has written to the New York *Times* about a survey he made on nine avenues, from Third to Eighth inclusive, giving ten minutes to each and surveying both north and southbound traffic, beginning at 10 a. m. This is rather a rough-and-ready method of arriving at conclusions, but the results give a general idea of conditions.

The most striking conclusion drawn is that 21.1 per cent of all traffic is made up of empty or cruising taxicabs. This is about 60 per cent of all the cabs in operation, which constitute 36.2 per cent of all traffic. Proceeding from this premise, the deduction is made that the 20,000 cabs registered in New York are twice as many as the city actually needs. For this reason, the writer suggests that definite parking stations be assigned to all cabs.

It undoubtedly is true that cruising taxicabs add materially to the seriousness of traffic congestion in New York, especially in the shopping and theatrical districts. They use much more street space than is necessary, because they are larger vehicles than utility requires. They are built to carry four or five passengers, when they seldom carry more than two. Making them smaller and lighter would be one means of conserving space and relieving congestion.

Any attempt to regulate the number of cabs in use in large cities would be exceedingly difficult, however. It is safe to assume that none is being operated at a loss, and so long as such is the case it cannot be contended fairly that the number in use is too large.

The taxicab is essentially an emergency and utility vehicle. It's something you want when you want it.

Users of taxicabs have equal rights in the streets with owners of private cars. Cruising, at certain hours of the day, is a great convenience to them and it should not be abolished, although it might be limited to certain periods if enough policemen could be found to enforce such a regulation. But a more important step would be to limit the vehicle size.

## Cars Used for Farm Business

NEW evidence of the utility value of passenger cars is given in a survey issued by the Department of Agriculture which shows that two-thirds to nine-tenths of the use of motor vehicles on 923 farms is for business purposes. On 1371 farms surveyed, 923 farmers reported ownership of 1000 cars and trucks, two-thirds of which were light phaetons.

These open cars are used for a wide variety of tasks. They haul feed, milk and other commodities, in addition to performing their normal function as passenger carrying vehicles. With the advent of closed cars better adapted to transporting merchandise as well as people the basic value of the motor vehicle on farms may be expected to increase at an even more rapid rate than in the past. The utility closed models provide protection against weather which permits their use in all without impairing materially their ability to carry farm products.

## Driver Examinations

USE of motor vehicle fees "to support a more effective system of motor car regulation" in New York State as well as for highway improvement is urged in an editorial in the New York *Evening Post*, recently purchased by Cyrus H. K. Curtis. The editorial points out the large number of automobile deaths in the State and says that the chief cause of these fatalities is lack of drivers' examination except in New York City.

While there may be sound reasons for using some part of automobile taxes to promote safety on the highways, the contention that more rigid examination of drivers would remedy the situation materially is open to serious question. To refuse licenses to those physically incapable of safely operating a vehicle is possible and desirable, but the records probably will show that most accidents involve drivers physically sound so far as any feasible test would reveal. Examination may tell whether or not a man is *capable* of operating a motor vehicle properly, but no test has been devised yet which can determine whether or not he actually will do so under various given conditions.

# Generally Accepted Balloon Tire Standards Are Needed

CAR engineers are beginning to express opinions about balloon tire standards. A good many of them feel that final standardization of tire and rim sizes should come slowly, rather than quickly. They think that more experimental work and service experience is needed before they can know definitely what range of sizes properly can be used.

Several prominent engineers have stated informally that they believe the time is about ripe to get together in concrete form the results of balloon tire tests which nearly every passenger car company has been making. Results of these investigations finally will be the basis of standards, but the task of collecting, analyzing and agreeing upon the material is certain to take a good many months. Car engineers will be likely to accomplish this task, as they have all of their other standardization work, through the Society of Automotive Engineers.

TIRE companies, however, have already completed very extensive experimental work in connection with balloon tires and are thoroughly familiar with tire building and designing problems. This experience and knowledge undoubtedly should be capitalized in attempting to reach final decisions. It is not logical to assume, however, that workable standards can be set without the "advice and consent" of the car engineers on whose vehicles they are to be used.

The standards recently agreed upon by tire manufacturers evidently are not being accepted as final by car manufacturers. This is witnessed by the continued demands of certain car companies for balloon tire sizes not included in the standards approved by the rubber men and by the statements of several prominent car engineers indicating their desire for more information before trying to come to a final decision.

While discussion about standards is going on, balloon tires are meeting with growing approval from car users, and manufacturers are supplying the demand by offering the new tires as regular or optional equipment. The desire for balloon tires cannot be deferred until all of the test data are in.

Tire dealers at their last convention passed a resolution urging upon manufacturers further standardization of tire sizes.

TIRE builders know better than anyone else the increase in production cost resulting from the manufacture of too numerous sizes. Minimum prices are desirable from the standpoint of the industry and the public. They can be obtained only through early agreement on standardization procedure.

The meeting held this week by the Tire and Rim Division of the S. A. E. resulted in a forward step along this line. At this session, which was attended by a dozen prominent car engineers in addition to the committee members, the standards recently developed by the Rubber Association were approved in a general way as being the best standards possible at the present time.

IN voicing their approval of this step several important engineers emphasized the fact that they do not consider the present standards final because the experimental data are far from being conclusive.

Since future changes in standards seem likely, therefore, some sort of orderly procedure for exchange of views between car and tire engineers is desirable.

The question at issue is not what organization shall be able to claim credit for setting standards, but how to get a final set of standards which can and will be used. Such standards can be formulated, it would seem, only through approval of both those who build and those who must use the tires, and approval can be expected only when both parties have had a part in making the decisions.

It is difficult to see what logical objections exist to the conference method of setting this important set of standards.

N. G. S.

# Crowds at Show Surpass Last Year

## Choice of Armory Site Justified by Returns

### Attendance for Full Week May Shatter Records—Sightseers Few in Number

NEW YORK, Jan. 10—Up to now the crowds attending the twenty-fourth annual New York show in the Bronx Armory have been greater than the record attendance for the corresponding period last year at the Grand Central Palace. Given a continuation of the present favorable weather, all previous records for show attendance should be shattered by the end of the week.

This showing at the gate justifies the radical action of the directors of the National Automobile Chamber of Commerce, acting on the advice of Show Manager Samuel A. Miles, in abandoning the Forty-second Street district and taking the show north to 193d Street, a move which when first announced was received with skepticism by many manufacturers and dealers.

The pessimists feared that the public would not follow the show into the Bronx, but the box office reports to date prove most conclusively that the N. A. C. C. directors made a most successful analysis of the possibilities of the new location.

**Attendance Increased Daily**

Even on the first day it was apparent that the public had been well sold on the Bronx Armory, despite a cold wave that sent the mercury down to zero, for the crowd then was greater than the opening day at the Palace a year ago. Since then the daily attendance has increased day by day until last night, when there was a crowd in the big building that could not have been jammed into the Palace with a shoe horn.

Approval of the Bronx Armory as the ideal building for a national automobile show comes not only from the manufacturers themselves, who for the first time find themselves with sufficient space in which to properly display their products, but the New York distributors and dealers unite in indorsing the change.

They say there is a noticeable difference in the caliber of the present show crowds. Those who jam the Armory these days and nights are not mere sightseers—they go there with the idea of either buying now or looking over the cars with serious intentions of buying later on. They show far more knowledge of motor car construction than did the crowds of previous years, and if the show does not put new life into the retail selling field it will be surprising.

Parking space for 3000 cars has been a feature that undoubtedly has helped swell the box receipts, for this has been taken advantage of by thousands of New Yorkers and residents of Westchester County, who find it far easier to drive to the show than it was to go to the Forty-second Street district by subway in previous years.

### *OUTPUT IN DECEMBER AMOUNTED TO* 296,595

**NEW YORK, Jan. 8—With the December production estimated at 296,595 cars and trucks, which is 34 per cent better than December, 1922, the total production for 1923 reached 4,005,230, according to a report read at the monthly meeting of the directors of the National Automobile Chamber of Commerce today.**

**The directors also were told by General Manager Alfred Reeves that retail trade conditions will equal the excellent record of last winter.**

**The truck market is holding firm, registering increases in most of the large cities.**

**The passenger car end of the business is likewise in a healthy condition, with used car stocks the same to slightly less than a year ago.**

## Battery Manufacturers Will Form Association

NEW YORK, Jan. 9—A meeting of battery manufacturers was held today under the auspices of the Class Journal and Chilton Companies, at which a resolution was adopted calling for the appointment of a committee to consider the formation of an association of battery manufacturers.

The committee named was made up of D. H. Kelly, vice-president, U. S. Light & Heat Corp., chairman; R. B. Crane, vice-president, the Cooper Corp.; A. R. Campbell, vice-president of the Wright Storage Battery Co., and Charles A. Englert, vice-president and general manager of the Englert Manufacturing Co.

This committee will meet in Chicago at the time of the show to consider the basis for the organization of an association of battery makers and the means of effecting it.

## Schwab Recommends Lower Selling Costs

### At N. A. C. C. Dinner He Suggests Consolidation as Means of Reducing Overhead

NEW YORK, Jan. 9—Charles M. Schwab, controlling the Stutz Motor Car Co. of America, made his real debut as an automobile manufacturer last night when he was the principal speaker at the annual banquet at the National Chamber of Commerce at the Commodore Hotel.

He declared that there is no limit to the world demand for motor cars, and then aired his views as to production costs, declaring that selling expenses should be reduced and suggesting consolidation as a remedy in lowering overhead.

In Mr. Schwab's opinion the number of concerns manufacturing motor cars should be reduced from seventy to five or ten by consolidations which would effect economies of production and enable manufacturers to make money commensurate with their capital investment.

On this point Mr. Schwab said:

I believe that all business to be successful and for the good of mankind must be done in the most economical manner possible, that you must exercise economy in production in every way to continue the development and use of that which you manufacture.

**Economies Through Great Units**

Great economies can only be made in great units. When the steel interests were a heterogeneous collection of small works over the country, each vying with the other for a little advantage in some particular direction, and those enjoying great natural advantages going to the front, it didn't develop the economies of the industry as they ought to have been developed. I believe instead of sixty or seventy great automobile concerns you ought to have five or ten. And then work in the spirit of cooperation that will enable capital invested in this industry to have a fair return on capital invested.

If I understand this industry aright, you have devoted all the talents of the distinguished gentlemen in the business to seeing how cheaply you could build your cars. Have you overlooked the fact that if a car costs you a thousand dollars to build, you have to spend five hundred dollars more to deliver the car to your customer? You cannot possibly make any such saving in manufacture but with the combined interests, with the combined ingenuity of this great crowd of people, I am sure that you can devise methods of making that great saving in the selling of your cars to the public.

It is not within my province to tell you how. But no problem industrially ever confronted the people of these United States

(*Continued on page* 107)

# Makers See Keen Competitive Era

## Realize Importance of Dealers' Success

### Provide Merchandising Ammunition in Car Refinements and Adopt New Policies

NEW YORK, Jan. 7—Motor car manufacturers came to the 1924 show with a profound appreciation of the fact that the industry is on the threshold of the keenest competitive era in its existence.

After a good year in which one of the factors that made it good was more intelligent merchandising, manufacturers evidence a clearer conception than ever before of how dependent their future success will be on the success of their dealers, that is, the ability of their dealers to make money.

Their desire to assist their dealers has taken many forms. Principal among them, as announced at the show, are the following:

**1—Closer contact between factory and dealer, which is to be established in some instances through the elimination of distributors and the division of their territories.**

**2—Establishment of flat discounts to dealers, irrespective of volume, with a slight advance only to wholesalers.**

**3—Guaranteed prices.**

**4—Longer and more liberal guarantee of material and workmanship.**

**5—Almost total elimination of long-term delivery schedules.**

**6—More and better merchandising assistance and market information for dealers.**

**7—Provision for giving dealers a voice in the shaping of merchandising and advertising policies.**

**8—Plans for assisting dealers in coping with the used car problem.**

**9—Plans for providing assistance and advice in dealer finances and accounting.**

**10—Better motor cars and more motor car for the dollar than ever before.**

So far as the appeal to the buying public was concerned, the preparations for the 1924 market began to evidence themselves weeks and months ago in the general activity of the producers in providing improvements and refinements—most spectacular among which were four-wheel brakes and balloon tires.

Most of these mechanical changes and body refinements were a part of the natural evolution of motor car engineering, but it is possible that they were hastened by the realization that new merchandising ammunition will be a strong factor in the success of dealers.

The visitors at the show gave ample evidence of familiarity with the more notable of the motor car improvements that have been announced, and this interest whetted their desire for additional information.

But the preparations of the makers for 1924 competition were not confined to the engineering departments at the factories. Sales departments have been working overtime in preparation for 1924 competition. Advancement in merchandising has more than kept step with engineering advancement. If 1921 and 1922 marked the dawn of the motor car merchandising era, 1923 was the year of greatest advancement in selling.

## *Greater Use of Fabrics for Bodies Will Be Important Development in Industry This Year*

**AN INTERVIEW WITH J. HARRY MAIN,**
*General Motors Advisory Board*

**By D. M. McDonald,**
*Detroit News Representative of the Class Journal Co.*

**Detroit, Jan. 9.**

**IMPORTANT strides in the use of fabrics for automobile bodies are expected by J. Harry Main, General Motors advisory board, during the coming year. These will come not only in closed bodies but in open bodies, and as a whole will probably be the most important developments in the industry of the year.**

**Successful use of fabrics instead of steel sheets will not only mean lighter weight and greater operating economy, but, in his opinion, will have an important effect upon prices and as such will greatly extend the possibilities for sale of all lines of cars.**

**During the course of the year four-wheel brakes and balloon tires will undergo refinement, said Mr. Main, but these will not have the effect on the industry that the successful development of fabric bodies will have. Equipment as now represented on most cars will change but little during the year, he declares.**

**Sales during the year will follow a steady pace and will equal those of last year without the development of a great spring buying rush. For that reason the purchasing departments of the industry will not be obliged to meet a sudden peak period during the early spring, but will have the advantage of a smooth buying movement beginning with the show season and running through the year.**

**Buying in the spring of 1923 ran 40 per cent in excess of anything factories could anticipate, he said, and brought about an onslaught for materials which it was impossible to meet at the time and which caused much loss to the industry. This year the industry is prepared and there will be no premiums.**

**General Motors by the end of the present year will produce all the closed bodies it requires and will be in a position to meet a demand that may run as high as 80 per cent of the entire output. The availability of closed cars at all times during the year, Mr. Main said, has placed the industry on a stable, all-year basis—a condition that will be first definitely established this year.**

**Buying in the specialized field caused by the development of the fully equipped car will continue much this year as in the past, Mr. Main believes. Cars are now carrying about everything in the line of equipment that can be expected, Mr. Main said, and he sees little chance for the development of anything outstanding, although refinements will occur in all branches of the industry.**

**Though cars of today are the finest that the industry has ever produced, Mr. Main said they are far from reaching their ultimate development and manufacturers must be constantly in touch with mechanical progress. The appearance of perfected mechanical improvement on which engineers have been working may come at any time and may prove revolutionary in their effect, demanding their adoption by every manufacturer.**

## Dodge Dealers Cooperate with Motor Boat Producer

NEW YORK, Jan. 9—Sales and service arrangements have been effected between the Horace E. Dodge Boat Works and Dodge Brothers, Inc., whereby deliveries of the Dodge Watercar, a motor boat made by the former company, may be obtained from any Dodge Brothers dealer, according to announcement at a showing of the boat in the Pennsylvania Hotel.

The fact that the boat may be serviced through any authorized Dodge Brothers dealer is offered as a remedy to service difficulties experienced by motor boat owners.

# Heavier Farm Sales Expected This Year

## Market in 1923 Reached Only 50 Per Cent of Manufacturers' Anticipation

NEW YORK, Jan. 7—The farm market for 1924 is regarded by manufacturers as promising to take a much larger number of cars in all price classes during the coming year than in the year just closed. Aside from Ford sales, the market in 1923 did not exceed 50 per cent of the demand that had been expected by most manufacturers, leaving a very large market wide open for the coming year.

Whether farmers are to come out of the low-priced car class in large numbers in 1924 is a matter of how prosperous they expect to be, manufacturers declare, and a general feeling is reported from the field for much better conditions. A distinct evidence of this is in the number of dealerships which are being opened up in agricultural districts, many being cases of dealers reentering business.

**Low Priced Sales Assured**

The farmer will buy just as good a car as he can afford, executives assert, and if he is at all favored by the developments of the year he will be an important factor in all lines. Plenty of low priced car sales are assured, more than last year by a large number, because of the necessity for some sort of transportation, and with favorable conditions, a much larger market for medium priced and higher priced lines is in prospect.

Cotton and wheat belts of the country were most disappointing during 1923 for two distinctly opposite reasons. Cotton prices were high but the crop was small. Wheat crops were large but prices low. Small cotton growers have been large buyers of low priced cars. In most other crops the yield was good and prices high so that entering the new year farmers are in much better condition than a year ago.

**Buying to Start in Summer**

By early summer a large buying movement is expected to originate in the farming centers which will take a large part of the production through the balance of the year. Not much buying is expected before that because, despite his generally improved financial condition, it is anticipated, the farmer will wait until he can visualize the possibilities of his yield during the year.

In all parts of the country there is reported a movement among farmers, especially the smaller farmers, to change over from unsatisfactory crops to those which promise better returns. Districts which have been unable to compete with others in certain crops will be found experimenting with new products. In the opinion of manufacturers this diversifying of crops will do much to promote better conditions in all districts.

Feeling among dealers in the small communities is reported very good and bankers are giving satisfactory cooperation. Used cars are practically unknown for the reason that farmers as a rule use their vehicles until their value is exhausted. Cars taken in trade are usually low priced cars and are appraised low, making ready turnover possible.

**Erskine Sees Good Farm Market**

NEW YORK, Jan. 7—That farmers have been buying cars to a large extent in 1923 and will continue to be a strong factor in the 1924 market is the opinion of A. R. Erskine, president of the Studebaker Corp.

"Farmers have been buying cars to a large extent in the South and in the Kansas City and some other Middle Western and Southern territories and I look for a continuance of this good business in 1924," said Mr. Erskine.

Mr. Erskine pointed out that the big increase in sales in 1923 has been in the class of the wage earners whose earnings were still 100 per cent above the pre-war standard while the cost of living was less than 100 per cent.

## 5 *OLD CARS FIGURE IN RELIABILITY RUN*

**NEW YORK, Jan. 7—As a sort of curtain raiser to the national show, students of the Stevens Institute of Technology of Hoboken took part in a so-called reliability run from the West Twenty-Third Street ferry to the Bronx Armory. There were five old cars in the contest, which had been overhauled and put in running order by the students themselves—a 1900 de Dion, 1899 Panhard, 1900 C.G.V., 1901 Darracq and 1903 Ford.**

**As an advertisement for the show the run was a success, and at the end the reliability honors were awarded to the veteran Panhard, a car with a dignified history which once belonged to "Lucky" Baldwin, who paid $15,000 for it. Despite its age, the Panhard made the trip without any mechanical attention. It was handled by H. V. Courtney and Fred Boehling.**

## CLASS JOURNAL OFFICE MOVES

DETROIT, Jan. 7—The Detroit office of the Class Journal Co. is now at 7338 Woodward Avenue, the change from the former office at 317 West Fort Street having been made during the past week. The new offices are close to the geographical center of the city at Woodward Avenue and Grand Boulevard and afford larger quarters. Both editorial and business offices are now at the new address.

# Electric Standards Work to Be Extended

## Association Directors Favor Recommending Policy for Installing Units

NEW YORK, Jan. 8—Continuing its policy of standardization work in the ignition, starting, lighting and battery field, the Automotive Electric Association at the winter meeting of its board of governors favored carrying standardization beyond that of standards for starting motors and generators, which have already been agreed upon, and feels it is necessary to express itself as to what is good practice in connection with the installation of the units that have been standardized.

This proposed action is held to be necessary because much of the trouble with electrical units comes from poor connections and other work having to do with installation rather than from faulty design of the units.

The annual election resulted in reelection of the present officers, who have already handled the direction of the association for two years: President, A. D. T. Libby, Splitdorf; vice-president, C. O. Miniger, Autolite; E. C. Wilcox, Connecticut; R. J. Nightingale, Willard, and A. H. Bartsch, American Bosch; secretary-treasurer, George S. Cole, Leece-Neville, and manager, Earl Turner.

The association has a membership of twenty companies, made up of manufacturers of starting, lighting, ignition and battery equipment. The work is carried on largely through such committees as standard, service, legal and advertising.

The next meeting of the Board of Governors will be held in May at Briarcliff Lodge, Scarborough, N. Y. The place at which the annual convention is to be held next fall has not been decided upon.

# Ford Holds Own Show of Power Equipment

NEW YORK, Jan. 7—The Ford power equipment exposition is now being held in conjunction with the display of the Ford Motor Co. in the Ford building at Broadway and Fifty-fourth Street. It will continue to Feb. 2.

The exposition, which contains more than 100 exhibits made by eighty manufacturers in the United States and Canada, displays only equipment made by recognized manufacturers who have designed equipment now used on the Ford truck and the Fordson tractor.

Prominent in the exhibit are the various styles of Martin-Parry commercial bodies displayed on Ford chassis. Martin-Parry has developed thirty-eight standard bodies for Ford use. A Martin-Parry body can be mounted in less than two hours' time and no fitting or maching is necessary.

# Used Car Evil Cure Seen in 1924 Product

## Felt That New Models Should Sell Themselves—High Allowances Discouraged

NEW YORK, Jan. 7—In the new cars of 1924 manufacturers see the end of the used car problem if dealers will take full advantage of the opportunities presented to do business along plain common sense lines. It was generally agreed that there has never been such a showing of cars so likely to inculcate desire for ownership on the part of the public. It remains for dealers to sell them entirely on that basis.

If dealers, despite the fact that the new cars present an opportunity to sell them entirely on their merits with the trade-in allowance as only a minor consideration, continue to do business as in the last few years, then the used car will continue as a serious evil and will grow worse. In the manufacturers' opinion the time to cure the evil is now and the new cars make it possible.

### Cars Greatly Improved

Manufacturers have gone further than ever before to make cars of outstanding perfection, both mechanically and in external appearances. In almost every line refinements have gone far beyond those of former years. Everything that could be done to make a car sell itself has been done, say executives, and dealers will be greatly lacking in sound judgment if they make injurious trades to move them.

Executives of several of the new cars at the show have made it very plain to their dealers that they will not countenance any poor trades in the moving of their allotments for the year. There are too many persons who will want these cars at the dealers' terms to make it necessary for the dealer to take in cars at the buyers' terms, they declare. Trade-ins at low prices involve no difficulty or loss in moving, and by putting retail sales on that basis there can be no used car problem.

### Used Stocks in Good Shape

The opening of the year 1924 finds used car stocks in fairly good condition, sales executives assert. Low priced car manufacturers report average stocks as low as 7 cars to a dealer. In medium priced lines the situation is more difficult, but not serious, owing to dealers continuing aggressive used car sales campaigns, even though obliged to take losses. In the average number of cars to dealer the totals are satisfactory.

Some sections of the country are in excellent shape on used cars, although others are bad. Generally speaking, the condition is spotty. Stocks now in dealers' hands, except in the low and some high-priced lines, are in most cases being liquidated, involving losses, but they are moving. That dealers are not seriously involved by used cars is shown in the orders they are placing for new ones, and the number of cars they will stock before the real spring selling season begins.

A tendency on the part of manufacturers to lessen pressure on dealers to take new cars is evidenced at the show. This is not entirely voluntary by all makers, but is being brought about by definite refusal on the part of dealers to take losses to move cars, and is also due to some extent to the influence of bankers. A number of cases were reported of dealers who had quit business for the present rather than take cars which they felt they could not move readily.

Sales executives look for improved methods by dealers in handling used cars in the present year, in view of experience during 1923. Used car selling is expected to be carried on as aggressively as new car sales. Appraisals will be much lower and will eliminate losses to a large extent.

Greater factory cooperation is promised by the attitude of manufacturers, but the work will continue to be regarded as an individual dealer problem. By selling his new car on its merits he will go further toward eliminating his used car difficulties than ever before, declare executives, and every effort will be made to keep this thought uppermost during the year.

## *MILLIONTH CAR MADE BY DODGE BROTHERS*

**DETROIT, Jan. 9—Dodge Brothers has completed its first million cars in nine years and eleven days, car No. 1,000,000 leaving the assembly line Dec. 13.**

**The company reports that in almost every city in the United States and in many cities abroad there are Dodge Brothers cars in operation of 1915 and 1916 production which have run more than 100,000 miles.**

**Strong public demand has given constant impetus to production from the start, the factory reports. Oversold at the outset, this condition has continued to now, although the plant has grown from 20 acres of floor space at the outset to 150 acres at the present time, and employing 20,000 men. With the new assembly plant placed in operation this year, plant capacity has been increased to upward of 1000 daily.**

## KLAXON OUTPUT LAST YEAR

NEWARK, N. J., Jan. 7—The Klaxon Co. reports a production of 1,302,000 horns in 1923. The largest single day's production and shipment totaled 11,200 horns, and in the best month 165,048 were made and shipped.

# Fields Is Appointed Maxwell Sales Head

## Succeeds the Late Arthur E. Barker—To Handle Chalmers and Chrysler Also

NEW YORK, Jan. 7—The appointment of Joseph E. Fields as general sales manager of the Maxwell Motor Corp. and its associates, the Chalmers and Chrysler companies, was made known at the opening of the New York show. Mr. Fields succeeds the late Arthur E. Barker.

For some time Mr. Fields has been associated with Maxwell, having under his immediate care the general sales and service work of the Chalmers company. With the appearance of the Chrysler, he was also delegated to handle the distribution of this line and now in his new position takes over the general sales work of the entire line, including Maxwell, Chrysler and Chalmers. Formerly Mr. Fields was associated with the Liberty and Hupp companies.

### To Concentrate on Chalmers

For the present Mr. Fields will devote the larger part of his time to the distribution of the Chalmers. Several months will be required to get the car into dealers' hands and deliveries to customers will not be under way formally before March 1. By that time, he declares, the company will be producing about 150 cars daily and will increase this total as the year progresses.

Response of dealers to the announcement of the Chrysler line has been very large, Mr. Fields declares. So far as conditions permit sales will be through the regular organization of the Maxwell and Chalmers companies, but many additional dealers will be appointed to specialize in the new line.

# Kokomo Residents Loyal in Haynes Refinancing

NEW YORK, Jan. 7—Hayden Eames, general manager of the Haynes Automobile Co., brought to the show news of the successful financing of his company through the loyalty of the residents of Kokomo, who have subscribed to more than $1,000,000 worth of Haynes bonds in less than three weeks.

More than 600 Kokomo business men turned to and helped in the floating of the bonds, the campaign being brought to a successful conclusion Jan. 2 at a mass meeting at the Haynes factory.

"A remarkable feature was the loyalty shown to the Haynes company by employees of other Kokomo factories," said Mr. Eames. "Employees in one group of Kokomo industries subscribed to more than $40,000 worth of bonds. Haynes employees also gave almost an equal amount. Every Kokomo bank and practically every leading business house bought Haynes bonds, while hundreds of subscriptions were made by individual citizens."

# *SHOW HAPPENING NOTES*

N. H. Van Sicklen, vice-president and general manager of the Apperson Brothers Automobile Co., and Edgar Apperson are not at the show, both having gone on a western trip. Mr. Van Sicklen has gone direct to the Pacific Coast, and Mr. Apperson, after a month in Phoenix, will join him.

A sales conference of Marmon dealers in the Eastern division was held at the Hotel Empire, presided over by S. S. Toback, head of the New York branch This was in the nature of a second edition of the convention recently held at the factory, and is probably the first of several sectional meetings. Talks were made by all Marmon executives who are in the city attending the show.

**The Indiana Automotive Manufacturers Association came to the show in a special train, 150 strong. Officers of the association in the party included: President, Will H. Brown, Nordyke & Marmon Co.; vice-presidents, L. E. Porter, S. F. Bowser Co.; J. I. Farley, Auburn Motor Co.; B. F. Chandler, Ross Gear & Tool Co.; secretary, Lon R. Smith, and treasurer, George T. Bryant, Robert I. Hassler Co.**

Vance Smith of the Homer McKee Advertising Co. of Indianapolis and Harry Lasher, a well-known advertising man, came to the show in a taxicab, making what is claimed to be the longest taxicab trip on record. They left Indianapolis in a Premier taxicab, carrying a message from Mayor Shanks of Indianapolis to Mayor Hylan of New York, arriving Saturday after having covered more than 1000 miles. The taximeter showed $335 charges, exclusive of the driver's tip of $40. The actual running time was about 38 hours at an average speed of 25 m.p.h.

All the way to the Armory under cover was one of the features of the advertising of the show. Visitors using the subway found at the Kingsbridge terminal an awning leading from the foot of the steps—the subway is elevated at that station—to the side door of the Armory, so that no matter how inclement the weather, they were protected from the time they took their seats in the train until they were in the Armory itself.

Executives of the Rollin Motor Car Co. are happy because of the first drive-away from the factory last week. In the short time the company has been operating it has secured $25,000,000 worth of business, while the demands for its product has surpassed all expectations. It is claimed that the books show orders for more than 30,000 cars for 1924, while the factory capacity is 20,000.

Stutz Motor Car Co. in the past year increased its dealer strength 300 per cent and is planning to add as many dealers to its list in 1924 as it did last year. Asking the dealers for only a minimum estimate of their needs, the company feels it ought to turn out more than 5000 cars this year.

At the request of the Boy Scouts of America, the Rickenbacker Motor Co. has changed the prize-winning name of the Rickenbacker Scout model to Rickenbacker Sport roadster. This action was taken because of the privilege conferred on the Boy Scouts of America by Congress, protecting the organization against infringement of the name, special titles and words or phrases peculiar to the Boy Scout organization. The model was named following a nation-wide contest which brought in more than 10,000 suggestions, the winner of the $100 prize being J. H. Tolle of Deming, N. M.

The Franklin Automobile Co. claims that it created a new record with 80 per cent of its 1923 output closed cars. The sedan was the best seller, shipments of this one type constituting 47 per cent of the entire output. Sedan shipments in 1923 were 50 per cent greater than in 1922.

## Bulletins to Be Issued by Committee on Safety

NEW YORK, Jan. 9—The Traffic Planning and Safety Committee of the National Automobile Chamber of Commerce, of which George M. Graham is chairman, met today in conference with President Thomas P. Henry of the American Automobile Association. Accompanying Mr. Henry were W. E. Metzger and Dr. James J. Inches of the Detroit Automobile Club.

The N. A. C. C. committee formally decided to work with other existing safety efforts, particularly in locally applied campaigns. The committee hopes to be a stimulating force, campaigning for certain basic principles of sound and safe traffic operation.

In connection with its work it will issue weekly to the daily press a bulletin on motor traffic news which will be made up of announcements of happenings in safety and city planning affairs.

### LYCOMING "8" IN LINE ENGINE

WILLIAMSPORT, PA., Jan. 9—The Lycoming Motors Corp. of this city, which heretofore has been manufacturing four-cylinder engines exclusively, has brought out an "8" in line engine. Details of the new engine will be given out in the near future.

## Body Builders Ask Excise Tax Repeal

### Draft Resolutions Urging Congress to Act Favorably on Clancy Measures

NEW YORK, Jan. 10—Strong resolutions calling for the repeal of obnoxious excise taxes on passenger cars, trucks and parts were adopted by the Automobile Body Builders Association at its mid-winter meeting held yesterday at the Waldorf-Astoria. The resolutions had previously been adopted at a meeting of the commercial and bus body sections of which Chaster Hummel is chairman.

It is pointed out in the resolutions that tax upon tax has been piled upon the automotive industry and the users of its products. The excise levy is particularly objectionable because it has been retained after the repeal of such imposts on commodities which are purely luxuries and as it now stands is an added tax upon transportation.

**Congress to Get Resolutions**

The resolutions petition Congress to support the bills introduced by Representative Robert F. Clancy of Michigan calling for the repeal of the excise taxes upon automotive products. Copies will be sent not only to all members of Congress but to President Coolidge and to Secretary of the Treasury Mellon.

A letter was read from Representative Clancy, in which he declared the protest of the industry against excise taxes had not been vigorous enough and that Secretary Mellon has not been convinced they should be repealed. He added, however, that he had convinced the Democratic minority in the House that the tax on trucks, at least, should be removed and that the progressive element in the house was in sympathy with this proposal.

An attempt has been made to obtain the truck tax repeal first because that is the weakest link in the chain of automotive imposts and also because it brings in revenue approximating only about $10,000,000 a year.

**Immediate Protests Urged**

Representative Clancy said he had asked Senator Edge of New Jersey to introduce his bills in the Senate. He warned that there must be no delay in sending letters and telegrams of protest to members of Congress.

Harry Meixell, chairman of the legislative committee of the National Automobile Chamber of Commerce, urged the body builders to stand with other branches of the industry on all questions of legislation and taxation.

Harold Seaman reported that the passenger body section had decided to take up intensively the subject of uniform cost accounting in the hope that in this way unfair competition not based on economic considerations could be eliminated.

# Truck Makers Talk Better Sales Efforts

## Improper Selling Blamed for Many Evils Existing in Retail End of Business

NEW YORK, Jan. 8—Necessity for improving the quality of the sales effort expended in the merchandising of commercial vehicles was considered by motor truck manufacturers who are members of the National Automobile Chamber of Commerce at an all-day session here yesterday. Windsor T. White, chairman of the N. A. C. C. motor truck committee, presided, and about thirty companies were represented.

S. G. Rosson, vice-president of the Commercial Credit Co. of Baltimore, contending that motor truck retail paper was of such poor quality that it is shunned by finance companies, asserted that manufacturers should assume the responsibility for the sale of their products to persons who will complete their payments and who can make a profit out of their operation. He blamed improper selling for many of the ills which have arisen in the retail end of the truck business, and held that factories should relieve credit companies of the responsibility of selling repossessed vehicles.

### Agree With Rosson

C. J. Helm of the Acme company voiced general agreement with Rosson's views and so did D. S. Ludlum of Autocar. W. L. Moreland of the Moreland said only about 16 per cent of his company's sales were on time, but that such as were made on installments were financed by a little finance company which was a subsidiary of his corporation.

R. S. Hurd, special agent of the Pennsylvania Railroad, described what that company is doing in the movement of freight by motor trucks. He expressed satisfaction at the results of the experiments thus far and made the somewhat startling statement that each of the nine trucks which are being operated by the Pennsylvania has displaced a train.

Mr. Hurd declared the Pennsylvania was ready to entertain proposals from financially responsible operators of large fleets of trucks who would be willing to undertake the handling of freight between stations in congested terminal areas in the hope of a profit. His company does not propose to take up that work because it might run afoul of regulatory complications.

### Collins Shows Truck Charts

J. H. Collins of the Chilton and Class Journal companies presented a series of interesting charts showing the present status of the truck industry. He pointed out that, while there was a sharp increase in the number of units sold last year, there had been a decline in dollar value as compared with 1919. One of the reasons is the strong trend toward light vehicles. He attributed failure to merchandise commercial vehicles more aggressively to the fact that there are only about 2500 exclusive truck dealers in the country.

There was the usual discussion of the evils attendant upon excessive trading allowances, but no action was taken on the subject.

H. K. Bishop, chief of construction of the Bureau of Public Roads, pictured the simultaneous progress of highway transport and highway building. In connection with his paper, the truck manufacturers were shown the new motion picture film depicting the importance of good roads in a farm boy's life, which was taken under the joint auspices of the Ford Motor Co., the Bureau of Public Roads, the Highway Education Board and the N. A. C. C.

W. J. Flickinger, chairman of the committee on bus operation of the American Electric Railway Association, in outlining the development of bus transportation, asserted that street railway companies were eager to cooperate with the automotive industry in the use of motor vehicles to supplement their rail service.

# Peerless Again Operates After Changes at Factory

CLEVELAND, Jan. 9—Operations at the Peerless Truck & Motor Co. plant in this city were resumed Monday after a shut-down of three weeks, during which extensive factory changes were made preparatory to the manufacture of the new Peerless six along with the eight-cylinder model.

When the factory reopened operations were started with new executives in charge. During the shut-down R. H. Collins resigned as president and general manager and W. H. Collins as vice-president. An executive committee is now supervising the conduct of the business, with D. A. Burke, vice-president and general manager in direct charge.

It was learned, although no official statement was made, that the present system, with Burke at the head, and the executive committee supervising policies, will continue for some time.

### Shipping Plant to Be Built

A part of the revamping program includes the building of a shipping plant and a structure that will be used for the assembling of the six-cylinder car. This room will contain approximately 35,000 square feet of floor space and will be completed in twenty days. The shipping building is now about ready for use.

The Peerless organization has begun to move materials through the plant for the eight-cylinder car and within a week these cars will be ready to ship. On Jan. 14 the company will start materials through the plant for the six-cylinder car and these will be ready for shipment about March 1. Operations will start with a very reasonable production which will be increased gradually to reach heavy production in February or March.

# Chief of Automotive Division Is Desired

## Exporters Demand That Permanent Head Be Named for Government Bureau

NEW YORK, Jan. 8—A demand was expressed here today at a meeting of the export committees of the various automotive associations that a chief be appointed without further delay for the Automotive Division of the Bureau of Foreign and Domestic Commerce.

In expressing his hope that this might be done, W. G. McCann, export manager of the Indian Motorcycle Co., representing the motorcycle and allied lines, declared that the work of the division was being hampered and its effectiveness reduced through the failure to appoint a permanent head of the organization, which functions as a contact point between the American industry and the foreign field.

### Meeting at N. A. C. C. Headquarters

The meeting, held at the National Automobile Chamber of Commerce headquarters, had been arranged so that the work of the division during 1923 and its plans for 1924 might be presented, and representatives of the N. A. C. C., the Motor and Accessory Manufacturers Association, the Automotive Equipment Association and other organizations, as well as officials of the Department of Commerce and State Department, were present.

The situation existing in the division, however, was brought up by McCann, who explained that the division had been without a head since Gordon Lee resigned the position more than a year ago. M. H. Hoepli has acted as chief of the division since that time, but it was said this status was such as to minimize the effectiveness of the division.

McCann was followed by S. D. Black, chairman of the foreign trade committee of the A. E. A. Seconding the demand, Black declared his confidence in Hoepli and stated that action was essential. George F. Bauer, foreign trade secretary of the N. A. C. C., replied that J. Walter Drake, Assistant Secretary of Commerce, and Dr. Julius Klein, head of the bureau, were now considering the matter.

### Work of Division Reviewed

Hoepli reviewed the work of the division, calling particular attention to the Foreign Trade Manual, now going to nearly 500 firms, certain changes in export statistics and the listing of overseas development.

James F. Abbott, the commercial attaché at Tokio, discussed the Japanese market, and Addison C. Southard, head of the Commercial Bureau of the Consular Service, described the work of that service as outposts for the American automotive exporters in more than 400 localities throughout the world.

# Millions to Be Spent for Buick Expansion

## New Buildings, Additions and Equipment This Year Will Cost $11,000,000

NEW YORK, Jan. 7—The Buick Motor Co. will spend $11,000,000 in new buildings, additions and equipment for its main plant in Flint and its subsidiary plant in Detroit, President H. H. Bassett announced upon his arrival at the show. This expansion will enable the company to jump its daily production from 1000 to 1200 cars and enable it to reach its estimated 1924 production of from 235,000 to 250,000.

In addition to this $11,000,000 the company also is spending vast sums in providing additional facilities for Buick branches in various parts of the country. Notable among these are entirely new service buildings in New York City, Indianapolis, Pittsburgh and Jacksonville, Fla. The Jacksonville branch building is designed to serve tourists to Florida who drive Buick cars, thus giving them the same prompt and intimate factory attention as that enjoyed in the larger cities

### Storage Building Nears Completion

As explained by Mr. Bassett the expansion plans are as follows:

Already nearing completion is a stock storage building 1064 x 63 ft.; also 41,000 sq. ft. added to the gray iron foundry; 8000 sq. ft. to the forge shops and increased drying facilities for the body shop.

Additions authorized for completion prior to June 1, 1924, include the following: 210 x 360 ft. addition to the engine plant; 55 x 120 ft. addition to the engine test building; 125,000 sq. ft. added to the sheet metal plant; 140 x 200 ft. additions to completed car warehouse; 80 x 240 ft. added to the tool making shop.

The above additions naturally require increased space for executive functions and for the latter purposes a number of entirely new buildings will be provided at Flint. Among these, two are to be devoted respectively to engineering and personal service, while another entirely new plant will be erected for the manufacture of automatic screw machine parts.

The engineering building which will house the laboratories as well as all engineering personnel and equipment will embody four stories, 80 x 260 ft., the building to be of reinforced concrete.

The personal service building will be three stories, occupying a ground space 50 x 250 ft. This building will bring together all departments relating to personal service, such as medical, legal, savings, employment, etc.

### New Structure for Parts

The new building for automatic parts manufacture will occupy 80 x 400 ft. of ground, three stories high. This will allow the Buick company to make still more of the screw machine parts required.

The main office building is to have two additional floors, adding 30,000 sq. ft. to the present office floor space. There will be a material extension of present loading facilities, including special features to meet the rapidly growing export trade.

Of course, this extensive building plan calls for a large investment in machinery and equipment. Not only do expenditures for the latter involve the main plant at Flint, but the plant at Detroit as well. The latter will have a production capacity of 450 units a day instead of 200 as at present.

## *ARTIST SHOWS PUBLIC TIED BY MOTOR TAXES*

**NEW YORK, Jan. 7—In a fight being waged on excise taxes by the automotive interests a most powerful weapon is a cartoon drawn for the National Automobile Chamber of Commerce by Rollin Kirby of the New York World. The cartoon represents the public tied to a post with a rope "Special Federal Motor Taxes," while Uncle Sam, knife in hand, stands looking at the captive and holding another rope, "Other War Time Excise Taxes."**

**"Why Not Cut This One, Too?" is the caption and the text says:**

**"Public approval has greeted each step in wartime tax reduction. Repeal of the special wartime excise taxes on motor vehicles would be a 5 per cent saving to every buyer of an automobile or repair part, and would lower distribution costs in shipments of persons or goods by motor transportation.**

**"There is no doubt of the popularity of the removal of the 'nuisance taxes,' the railroad transportation taxes, and the proposed cutting of the income taxes. Why not cut this one, too?"**

## Ford Will Both Assemble and Produce at St. Paul

ST. PAUL, Jan. 8—Change in the plans of the Ford Motor Co. plant here will result in only a third being devoted to assembling cars and the other two-thirds to manufacturing. Parts will be made in the factory, which occupies only 25 acres out of a site of 160 acres, carrying the idea that an extensive expansion is expected.

Ordinances have been passed in the councils of both cities providing for a bridge over the Mississippi River from Minneapolis to the plant site.

## Standard Crate Company Receiver Is Appointed

JEFFERSON CITY, MO., Jan. 5—On petition of four stockholders the Circuit Court has appointed C. C. Carson receiver for the Standard Crate & Filler Co., of which one division is the J. M. Hays Wood Products Co., manufacturer of Hickory Hitter automobile bumpers.

The receiver states that it appears the quick assets of between $160,000 and $200,000 are very much in excess of all current liabilities. The receiver was authorized by the court to continue the factory in operation. The action of the stockholders was described as a friendly one for the best interests of the company.

# G. M. Debenture Stock to Be Sold Employees

## Will Pay 7 Per Cent—Payments to Be Made in Monthly Instalments

NEW YORK, Jan. 7—Announcement is made that General Motors has adopted for 1924 a plan for selling to employees of the corporation and subsidiaries 7 per cent debenture stock.

As outlined by the corporation, the plan is as follows:

Between Jan. 1 and Feb. 15, 1924, employees who have been continuously in the service of the corporation or its subsidiaries since Sept. 1, 1923, may subscribe for 7 per cent debenture stock of the corporation, at a price to be fixed and announced by the directors, which will carry dividends from Feb. 1, 1924.

Employees may subscribe for an amount of stock equal to one-third of their previous year's wages, or to an amount equal to their wage earnings for the four months ending Dec. 31, 1923, whichever is the greater, but in no case for more than ten shares of stock. Subscriptions require payments to be made in eleven monthly instalments. There is nothing, however, to prevent subscribers paying the total amount due at any time.

### Additional Dividend of $2

Employees who have paid their subscriptions in full will receive stock certificates for the shares purchased, and will receive dividends at the rate of $7 per share per annum. As an incentive to retain their investment in 7 per cent debenture stock, and as an inducement to remain with the corporation a payment of $2 per share per year for a period of five years will be made in addition to the regular dividend of $7 per share.

This additional payment of $2 per share per year will be made on Feb. 15 of the year following that in which the final payment under the subscription is made, and on Feb. 15 of each year thereafter until the five payments are completed, provided the employee remains the owner of the stock and continues in the service of the corporation.

Employees who may resign or be discharged from the service may retain stock purchased under this plan if they so choose, but will thereafter be entitled to receive only regular dividends.

In case of the death of a subscriber before completing all payments a check will be sent to his proper representative for the net amount standing to his credit, or if so desired, a settlement will be made in stock to the amount of all full shares paid for and cash for any balance.

## Willys to Attend Opening of Plant in Philadelphia

NEW YORK, Jan. 7—John N. Willys, president of the Willys-Overland Co., will attend the ceremonies opening the new assembly plant in Philadelphia next Monday, when the mayor of Philadelphia will deliver an address of welcome.

This is one of three assembly plants which the company has planned and marks a departure from past practice for Overland.

# Overland Produced 200,604 in All 1923

## Expects to Increase This Output in 1924, According to President Willys

NEW YORK, Jan. 7—John N. Willys was the topliner at the luncheon at the Biltmore today, tendered by Ward M. Canaday, head of the United States Advertising Co., which handles the Willys-Overland account, to the New York newspaper men. In his talk to his journalistic friends the president of the Willys-Overland Co. gave his estimate of 1924 production at 4,500,000, of which total he hopes to contribute 300,000 units.

"In my sixteen years with Overland we have built a total of 1,150,000 cars," said Mr. Willys. "In the first year we turned out 465. In 1916 we made 142,000; in 1917, 140,000; in 1918, 82,000; in 1920, 110,000; in 1921 we dropped to 46,000; jumped to 95,000 in 1922, and the past year we established the record of 200,604."

Continuing, Willys said:

I am glad to report that since we adopted the Knight engine the production of Willys-Knight cars has increased each year and in 1923 we made from 110 to 115 per cent more Willys-Knights than we did in 1922.

We have balloon tires and four-wheel brakes as the outstanding features of the present show, with nothing radically new mechanically. As I see it, we can look to the future for increased engine efficiency. In this direction the engineers are making wonderful advances and I think that in another year our company will be able to show you about ten horsepower more out of the same size engine than we have now.

In the matter of four-wheel brakes, I am not saying I won't put them on; neither will I say that I will—I am neutral at present and I am making every effort to thresh out the problem satisfactorily to everyone concerned.

# New Belden Engineering Headed by C. O. Miniger

TOLEDO, OHIO, Jan. 7—Toledo automotive leaders have joined in forming the Belden Engineering Co., which has been capitalized at $100,000 and which will engage in the development of a number of ideas in new automobile and appliance design.

Clement O. Miniger, president of the Electric Auto-Lite Co., is president of the new company. E. H. Belden, for many years chief engineer of the Willys-Overland Co., is the vice-president and H. C. Tillotson, president of the Tillotson Manufacturing Co., maker of carburetors, is secretary-treasurer. Offices have been opened in the Spitzer building.

### FORD PHILADELPHIA PLANT

PHILADELPHIA, Jan. 9 — Another step toward the erection of the assembly plant and power house for the Ford Motor Co. is the receipt of plans for bids by several local builders. Specifications soon will follow.

The building, to be constructed on the bank of the Schuylkill River, will be of steel and concrete, covering an area 1030 by 301 feet. The entire job, when completed, will represent an investment of approximately $5,000,000.

The site was purchased by Henry Ford in July, and settlement for the property was made in October. The land contains about seventy acres, with a frontage of about 800 feet on the river.

# New Company to Make Oil Purifying Systems

NEW YORK, Jan. 7—Motor Improvements, Inc., has been organized, with James A. Abeles as president and general manager, manufacturing a comprehensive line of oil purifying systems for automobiles, trucks, tractors, motor boats, airplanes and all types of internal combustion engines, as well as an oil reclaimer for garages and industrial plants.

Mr. Abeles as vice-president and general manager of the Motor Car Equipment Co. and in other official capacities was for many years an active factor in the accessory field. His new enterprise has been two years in the making, while its products have been developed. The corporation has its general offices in the Fisk Building, with its engineering and local service department in an entire building at 784 Twelfth Avenue.

# Marion Forged Products Gets Ready to Operate

MARION, IND., Jan. 9—The Marion Forged Products Co., which has been organized as a successor to the Western Drop Forge Co., is issuing 5-year 7 per cent bonds in the amount of $125,000 as a source for working capital. The merchandise creditors' claims of Western Drop Forge are being settled on a basis of 50 per cent cash and 50 per cent in bonds, the remainder of the issue being purchased by Marion interests.

The officers of the new concern are Frank W. Trabold, president; Robert W. Batton, vice-president; J. Mack Wilson, secretary, and Fred W. Davis, treasurer.

The company will manufacture forgings of carbon and alloy steels, brass, bronze, copper and aluminum, also a line of finished wrenches, chain pipe vises, etc. Operations will start about Feb. 1.

# Lexington Progressing Under Its Receivership

CONNERSVILLE, IND., Jan. 9—Progress is reported in the affairs of the Lexington Motor Co., now being operated by a receiver. With the continued cooperation of the creditors it is expected that the receivership will be lifted within the next few months and the company placed on a firm basis.

The company has scheduled a production of 500 cars to the middle of March and will increase this program as conditions warrant. There are 275 Lexington dealers, this number gradually being augmented.

# 796,000 G.M.C. Cars Were Sold Last Year

## Of This Number, 37 Per Cent, or 267,000, Reported as Being Closed Models

NEW YORK, Jan. 9—General Motors sold a total of 796,000 cars in 1923, according to the official report of the corporation. Preliminary figures give the December sales as 59,000 cars and trucks as compared with 46,871 actually sold in December, 1922.

"The increase in the sale of motor cars equipped with closed bodies is not generally appreciated," comments the General Motors report. "During 1923 there were sold 267,000 closed cars, or 37 per cent of the total. This compared with 120,000 closed cars, or 28 per cent of the total in 1922. There was, therefore, an increase of nearly 125 per cent in the number of closed cars sold in 1923 compared with 1922."

The number of cars and trucks sold by months by the United States and Canadian divisions of General Motors in 1923, compared with 1922, follows:

| | 1923 | 1922 |
|---|---|---|
| January | 49,162 | 16,088 |
| February | 55,427 | 20,869 |
| March | 71,669 | 34,082 |
| April | 75,822 | 40,474 |
| May | 75,393 | 46,736 |
| June | 69,708 | 48,541 |
| July | 51,634 | 33,772 |
| August | 65,999 | 42,840 |
| September | 69,081 | 35,442 |
| October | 86,936 | 40,815 |
| November | 66,256 | 50,232 |
| December | *59,478 | 46,871 |

* This preliminary figure of sales includes Buick, Cadillac, Chevrolet, Oakland and Oldsmobile passenger and commercial cars and GMC trucks.

# 1923 Chevrolet Output Announced as 483,432

NEW YORK, Jan. 7—Official figures on Chevrolet production for the year were given as 483,432 by Colin C. Campbell, general sales manager. Of this total, Mr. Campbell said, about 35 to 36 per cent were closed cars, a percentage which would have been higher had closed body facilities permitted. Large increases in closed body sales will be made during the coming year with the completion of body plants and additions which the company now has under way.

Beginning with March 1, Chevrolet will go on a production schedule of 3000 cars daily, Mr. Campbell said. Dealers will be in splendid shape to handle this volume of business, he said, pointing out that orders were already being received in large volume in all territories.

Beginning with the meeting for dealers in the North Atlantic district during show week here, Chevrolet will hold a series of dealer meetings in all important cities of the country, at which plans for the year's activities will be discussed.

# Balloon Tire Sizes to Fit Standard Rim

## S. A. E. Approves 20 and 21-in. Recommendations of Rubber Association

NEW YORK, Jan. 9—Developments of show week in respect to tires and rims include:

Announcement that the Executive Committee of the Tire Manufacturers' Division of the Rubber Association has approved five sizes, equivalent to double oversizes, of balloon tires which are intended for use on existing standard rims.

A meeting of various automobile engineers and one or two tire men with the Tire and Rim Division of the Society of Automotive Engineers Standards Committee at which a tacit and tentative indorsement of the Rubber Association recommendations on sizes of balloon tires for 20 and 21-in. rims was agreed upon.

A meeting of the Tire and Rim Association to which a representative of the S. A. E. was invited.

**Rubber Association Directors**

At the annual meeting of the Rubber Association of America the following members of the board of directors were elected: G. E. Hall, Boston Woven Hose & Rubber Co.; W. F. Pfeiffer, Miller Rubber Co.; E. H. Broadwell, Fisk Rubber Co.; A. L. Schuer, Kelly-Springfield Tire Co.; J. C. Weston, Ajax Rubber Co.; C. T. Wilson, Charles T. Wilson Co., and C. B. Seger, United States Rubber Co.

At a meeting of the board following the election, the officers who served last year were reelected, as follows: President, W. O. Rutherford, B. F. Goodrich Co.; first vice-president, G. M. Stadelman, Goodyear Tire & Rubber Co.; second vice-president, C. B. Seger U. S. Rubber Co.; secretary and general manager, A. L. Viles; and treasurer, G. B. Hodgman, Hodgman Rubber Co.

E. H. Broadwell remains a member of the executive committee of the Tire Manufacturers' Division, but is succeeded as chairman by W. W. Duncan, Hood Tire Co., former vice-chairman. G. A. Waddle, Goodyear Tire & Rubber Co., becomes vice-chairman and a representative of the Dunlop Tire & Rubber Corp. succeeded the Michelin representative. Otherwise the committee is unchanged.

**Tire Sizes Recommended**

The executive committee of the Tire Division of the Rubber Association has recommended the following "oversize low pressure tires for existing standard rims" to bear the following nominal size marking and the phrase "balloon type, interchangeable with —— (nominal size of present tire replaced) —— for passenger cars only:"

| Recommended low pressure (balloon type) for existing rims | Interchangeable with |
|---|---|
| 31 x 4.40 (straight side) | 30 x 3½ |
| 32 x 4.95 | 30 x 3½ or 31 x 4 |
| 33 x 4.95 | 32 x 4 |
| 33 x 5.77 | 31 x 4 or 32 x 4½ |
| 34 x 5.77 | 32 x 4 or 33 x 4½ |

The last two sizes are substantially identical with those used in the case of Michelin "Comfort" tires for existing rims. Michelin does not list the first three sizes but is producing 35 x 6.60 in. to replace 32 x 4½ or 33 x 5 in. sizes and 37 x 6.60 in. to replace 34 x 4½ or 35 x 5 in. sizes.

No announcement has been made as yet concerning the inflation pressure which the new balloon type tires will carry.

The Miller Rubber Co. has announced that it will manufacture the full line of sizes for present rims recommended by the Rubber Association.

Those who attended the S. A. E. Tire and Rim Division Meeting included: J. G. Vincent, Packard, chairman; B. B. Bachman, Autocar; A. J. Scaife, White; H. M. Crane, General Motors; Harvey Firestone; C. B. Whittelsey, Hartford Rubber Works; Howard Marmon, Marmon; C. L. Sheppy, Pierce-Arrow; F. E. Watts, Hupmobile; D. G. Roos, Locomobile; T. J. Litle, Jr., Lincoln; L. A. Chaminade, Studebaker; George Allen, Dodge Brothers; C. L. White, Willys-Overland; Fred Zeder, Chrysler; J. G. Swain, Firestone Steel Products Co., and C. F. Clarkson and R. S. Burnett of the S. A. E. staff.

Those present were of the opinion that it is desirable to put forth some well-considered, definite recommendation that will afford a suitable list of balloon tire and rim sizes for passenger cars rather than to leave the matter open to the extent that car manufacturers would have nothing to lead them toward a standard practice.

**Still in Development Stage**

It is felt that at best the problems of balloon tires and their rims and wheel diameters are still in the development stage that may require modification later on of any specification that might be approved at this time.

It finally was voted that the recommendation of the Rubber Association, in reference to the balloon tires for 20 and 21-in. rims, be published in the S. A. E. Handbook as general information, indicating that the society approves the recommendation, but does not approve it as an S. A. E. standard or recommended practice. The Division's recommendation will be submitted for approval on this basis by the S. A. E. Standards Committee at the meeting in Detroit on Jan. 22.

# Weston Elected Chairman of Board of Ajax Rubber

NEW YORK, Jan. 10—J. C. Weston has been elected chairman of the board by the directors of the Ajax Rubber Co. Mr. Weston will continue as president of the company.

E. L. Fries was elected secretary in addition to treasurer, and G. E. Shipley, formerly assistant to the chairman, was made vice-president and general manager. The company finished 1923 with no bank loans outstanding, it was announced.

# Transport Meeting Gets Swayne Report

## Tells Conference in Washington How Motor Vehicles Can Aid Railroads

WASHINGTON, Jan. 10—The report of Alfred H. Swayne, vice-president of General Motors and chairman of the committee appointed by the United States Chamber of Commerce to interpret the relation of highways and motor transport to other transportation agencies, was the feature of the second day of the national conference on transportation which opened here yesterday.

This was the most important session from the viewpoint of the automotive industry, the program calling for discussion of such major topics as: (1) The role of the motor truck within the terminal area. (2) The role of the motor truck outside the terminal area. (3) Passenger transportation. (4) Relation of motor transport to highway development. (5) Regulation of motor carriers.

More than $1,000,000,000 can be saved to the railroads and merchants of the country in the next five years through the transference of freight terminals from congested city areas to "green lands" and the use of organized motor trucking service, declared Mr. Swayne in the course of his remarks on the transportation situation.

**Result of Comprehensive Study**

Explaining that he had arrived at his conclusion as the result of a comprehensive study made in conjunction with the members of his committee, which included representatives from agricultural, railroad, waterway, electric railway and other industries, as well as motor transport, Mr. Swayne said in part:

Store door delivery by motor trucks which would afford the shipper an expedited completed delivery of the commodities which he sells or buys, is undoubtedly the greatest contribution which can be made to the solution of the terminal problem. Fortunately the improvement is one, which while it will literally save hundreds of millions of dollars, does not require relatively large expenditures, but simply in large part, a new application of existing facilities.

Ten miles mean scarcely more to the truck than one did to the horse drawn vehicle and in consequence a diffusion of our industries is made possible which can be followed in turn by a transference of freight terminals from the heart of congested cities to outlying lands. The implications of this change are far reaching.

**Favors Proper Regulation**

In presenting the conclusion to his committee, Mr. Swayne spoke also for proper regulation of both the business and the physical operation of motor transport, advocated highways suitable for an economic handling of traffic and called attention to the need for continued research to disclose more fully than is at present known the economic field of the motor vehicle.

# 4 Makers Announce Prices of New Cars

## Lists Issued for Chrysler, Peerless Six, Stutz Six, Westcott and Wills Ste. Claire

NEW YORK, Jan. 9—Prices were announced here of the new Chrysler, Stutz Speedway Six, Peerless Six, Westcott and Wills Sainte Claire.

The prices of the Stutz were set at a meeting at the home of Eugene V. R. Thayer, chairman of the board.

### *Peerless*

| | |
|---|---|
| Phaeton | $1,985 |
| Roadster | 1,985 |
| Sedan | 2,675 |

### *Chrysler*

| | |
|---|---|
| 5-pass phaeton | $1,335 |
| 5-pass. de luxe phaeton | 1,395 |
| Roadster | 1,525 |
| Sedan | 1,625 |
| Brougham | 1,795 |
| Imperial sedan | 1,895 |

Disk wheels and an extra rim optional at $25 extra.

### *Westcott*

| | |
|---|---|
| Phaeton (C44 Standard) | |
| Cord Tires | $1,690 |
| Balloon Tires | 1,840 |
| Phaeton (Cdd Standard) | |
| 4-wheel Brakes | $1,840 |
| Special Touring Sport | |
| 6 Cord Tires | $1,840 |
| 6 Balloon Tires | 2,040 |
| Brougham (2 Door) | |
| 6 Cord Tires | $2,190 |
| 5 Balloon Tires | 2,340 |
| Cords and 4-wheel Brakes | 2,340 |
| Brougham (3 Door) | |
| 6 Cords, Sport Equipped | $2,290 |
| 5 Balloon Tires | 2,440 |
| 6 Cords and 4-wheel Brakes | 2,440 |
| Sedan 60 (Own Engine) | |
| Cord Tires | $2,090 |
| Balloon Tires | 2,240 |
| 4-wheel Brakes and Cord Tires | 2,240 |

### *Wills Sainte Claire*

127 in. Wheelbase

| | |
|---|---|
| Roadster | $2,875 |
| 5-pass. phaeton | 2,875 |
| 7-pass. phaeton | 2,875 |
| 4-pass. coupe | 3,675 |
| 5-pass. sedan | 3,775 |
| 4-door brougham | 3,800 |
| 7-pass. sedan | 3,800 |
| *5-pass phaeton | 2,675 |
| *7-pass phaeton | 2,675 |

* Without Balloon tires or Four-wheel Brakes.

121 in. Wheelbase

| | |
|---|---|
| 5-pass. phaeton | $2,475 |
| 2-door brougham | 3,375 |
| 5-pass. sedan | 3,375 |
| Imperial sedan | 3,575 |

### *Stutz*

SPEEDWAY SIX

| | Standard Price |
|---|---|
| 5-pass. sportster | $2,650 |
| 7-pass. tourster | 2.685 |
| 5-pass. sportbrohm | 3,350 |
| 7-pass, suburban | 3,500 |
| 7-pass. berline | $3,500 |
| Chassis | 2,350 |

SPECIAL SIX

| | |
|---|---|
| 3-pass. roadster | $1,995 |
| 5-pass. phaeton | 1,995 |
| 5-pass. tourabout | 2,265 |
| 5-pass. sedan | 2,550 |
| Chassis | 1,795 |

SPEEDWAY FOUR

| | |
|---|---|
| 6-pass. touring | $2,640 |
| 3-pass. roadster | 2,450 |
| 4-pass. coupe | 2,990 |
| 3-pass. bearcat | 2,765 |
| Sportcoup | 3,250 |

Hydraulic four-wheel brakes and balloon tires are optional equipment on the Speedway Six. There is an extra charge of $75 for four-wheel brakes, $110 for balloon tires and $185 for both. On the Special Six balloon tires are optional at $200 above list.

# Holder Forecasts Price Increase on R & V Cars

EAST MOLINE, ILL., Jan. 9—Price advances ranging from $300 to $500 on R & V Motor Co. cars are predicted next spring by H. A. Holder, president, in a letter sent to his dealers. Mr. Holder gave no probable date for the increase, stating that it would depend upon the rapidity with which the present stock of cars is disposed of.

"We are rearranging our factory, and when we start production for the spring run," the letter stated, "it will be on a smaller scale and consequently our costs will be higher than they have been this year. We will, as I see it, have to content ourselves as being specialty producers along the lines that we have conducted business for twenty years."

# PERSONAL NOTES

### Dawson Succeeds Harrington

Howard W. Harrington, advertising manager for the Moline Plow Co. for five years, has resigned and joined the H. K. McCann Advertising Agency. M. O. Dawson, superintendent of the Moline Press, Inc., a printing plant subsidiary of the Moline Plow, has succeeded Mr. Harrington, and he will be aided by H. B. Weeks, assistant advertising manager. Mr. Harrington came to Moline in 1918 as advertising head of the tractor branch of the Plow company, and the following year was given full charge of the entire plow advertising.

### Appoints Alvan Macauley, Jr.

Alvan Macauley, Jr. has recently been appointed Michigan representative for the Firestone Steel Products Co. William A. Baker, the former representative, has been transferred to Akron as sales manager.

### Callan Heads Airships Incorporated

Commander J. L. Callan, formerly of Naval Aviation, has been elected president and a director of Airships Incorporated of Hammondsport, N. Y.

# Few Makers Revise Prices During Show

## Cleveland and Apperson Reduce, While Auburn and Lexington Advance Lists

NEW YORK, Jan. 10—Price changes have not caused much of a stir in trade circles this week and it is evident that the industry is once more normal in this direction. There have been few changes announced so far and it is thought that there will be no more this week.

Price revisions are as follows:

### *Auburn*

| 6-43 Series | Old Price | New Price |
|---|---|---|
| 5-pass. standard phaeton | $1,095 | $1,095 |
| 5-pass. spec. phae. (new) | ..... | 1,295 |
| Sport model | 1,325 | 1,365 |
| 5-pass. sedan | 1,495 | 1,695 |
| 5-pass. Eng. coach (new) | ..... | 1,845 |
| **6-63 Series** | | |
| 5-pass. special phaeton | 1,595 | 1,695 |
| Sport model | 1,850 | 1,935 |
| Four-door brougham | 2,145 | 2,245 |
| 5-7-pass. sedan | 2,345 | 2,445 |

The advances are due to additional equipment.

### *Lexington*

| | Old Price | New Price |
|---|---|---|
| 2-pass. roadster | $1,895 | $1,895 |
| 5-pass. phaeton | 1,795 | 1,895 |
| 7-pass. phaeton | 1,895 | 1,995 |
| 5-pass. Lark sport phae. | 2,145 | 2,145 |
| 5-pass. California top | 2,095 | 2,195 |
| 7-pass. California top | 2,195 | 2,295 |
| 5-pass. royal coach | 2,245 | 2,295 |
| 5-pass. brougham | 2,345 | 2,395 |
| 5-pass. sedan | 2,645 | 2,695 |

Optional extras are priced as follows: Five wire wheels, $100; five special wire wheels and five balloon tires, $175; six special wire wheels and six balloon tires on Lark sport model, $90.

### *Cleveland*

| | Old Price | New Price |
|---|---|---|
| 5-pass. two-door sedan | $1,365 | $1,295 |
| Special two-door sedan | 1,465 | 1,395 |
| Four-door sedan | 1,545 | 1,395 |
| Special four-door sedan | 1,645 | 1,495 |

In addition a De Luxe phaeton has been added and the sport model discontinued. No change has been made in the standard phaeton price, which remains at $1,045.

### *Apperson*

| Six cylinder | Old Price | New Price |
|---|---|---|
| 5-pass. phaeton | $1,535 | $1,395 |
| Sedan | 2,200 | 1,995 |
| Sport model (new) | ..... | 1,660 |
| **Eight cylinder** | | |
| 5-pass. phaeton | 2,820 | 2,485 |
| 7-pass. phaeton | 2,900 | 2,485 |
| Sedan | 3,750 | 3,385 |

The reductions are made possible through the elimination of equipment used last year, which selling experience showed was not in demand by the public. Balloon tires are optional on the six cylinder line, and four-wheel brakes are optional on both six and eight.

# ADOPT NEW MERCHANDISING POLICIES

## Columbia Lays Plans to Help Its Dealers

### One of the Projects Will Be Used Car Service—Magazine to Be Issued

DETROIT, Jan. 3—Columbia Motors Co. has worked out a sales plan for 1924, to be used cooperatively with its dealers and prospective dealers, in which it places the elimination of used car losses as pre-eminent for dealer success.

To eradicate used car losses, an advertising and sales service is offered by Norman I. Taylor, advertising counsel, which, while prepared especially for Columbia dealers, will be offered the retail trade generally through his own organization, Taylor Selling Service.

The feature of the used car service is a series of newspaper and direct by mail copy, designed to build up public confidence in the dealer handling the used car. The service covers a six months' period and is divided into five classifications to meet the needs of dealers in varying size communities. The cost of the service is dependent on the size of the communities in which it is offered. Only one dealer in each community will have the privilege of the service.

**Assumes Advertising Costs**

Aside from the used car service, the principal feature of the Columbia dealer help plan is the assumption by the factory of advertising costs. Regular copy to appear four times monthly will be prepared, and space paid for by the company. Dealers will have the help of the Columbia plan in locating prospects and in addition to the newsaper campaign, these will be circularized by mail from the factory.

Every month the factory will send to each dealer's banker or financial associates personal letters to keep them informed on dealer possibilities under the Columbia franchise and sales plans. Each month dealers will receive from the factory complete sets of show window display and advertising material. Salesmen in each dealer's establishment will receive personal assistance from the factory each week in his sales work, this supplementing the dealer's own educational efforts.

Columbia is also offering dealers, under the 1924 plan, a financial arrangement that will provide for both floor and retail requirements. Frequent contact with the factory organization will be maintained through meetings held in the different territories.

The company will issue, beginning with January, a company publication titled "The Communicator," which will go to all dealers and their sales staffs, and which will contain ideas, suggestions, plans, ways, means and methods for moving merchandise and increasing profits. The magazine is intended to keep everyone in the Columbia organization well posted on every helpful development.

### *STUDEBAKER CHANGES ITS DISCOUNT POLICY*

**NEW YORK, Jan. 7—Under the 1924 Studebaker merchandising plan the old sliding scale of discounts, ranging from 18 to 25 per cent, according to the number of cars purchased by the dealer, is abolished, and in its place there has been adopted flat discounts applying alike to all dealers, with an extra premium of 1 per cent only for large volume above a fixed quantity on each model.**

**Under this arrangement, President E. A. Erskine says distributors are virtually eliminated and the number of dealers with direct factory contracts quadrupled.**

**"Studebaker wants its little dealers to be successful," Erskine says. "We want them to make money. We believe that the new plan is a step toward insuring the success of our smaller dealers because under it we are not paying a premium for quantity and penalizing the dealer in a small city or town with a limited buying power, who sells approximately up to 100 per cent of his opportunity."**

## General Tire Last Year Earned $1,200,000 Net

AKRON, OHIO, Jan. 7—Reports made at the annual meeting of the General Tire & Rubber Co. show that net earnings for 1923 were $1,200,000 on gross sales of $9,000,000. Last year's sales were $7,600,000. The business in units was 51 per cent greater than in 1922. These earnings are equivalent to $30 a share on the common stock, which now has a par of $50 and is quoted on the market at better than $150. Of the $1,200,000 earnings, $1,000,000 was earned the first half of the year.

The financial statement shows that although the company declared a 100 per cent stock dividend a year ago, it always has paid its cash dividends regularly on both preferred and common. It also declared a special 6 per cent dividend on common just before Christmas and the surplus has been built back to close to $900,000 during the year. Incidentally the company paid for three new plant additions out of its 1923 earnings, and retired some $90,000 of preferred stock, three times the charter requirements.

## Dealers Will Assist in Templar Policies

### New Merchandising Plan Will Function Through Dealer Association

CLEVELAND, Jan. 7—An interesting merchandising plan in which the dealer organization is to have an active voice in the shaping of factory policies has been announced by the recently reorganized Templar Motor Co.

The plan will function through a dealer association which will be represented in contact with the factory by a board of governors and an executive committee. The board of governors will be chosen from among dealers having the largest sales volumes and the executive committee will be elected from among this group by the dealers.

Details of the plan provide for an annual meeting of the entire dealer association at the factory and conferences at the factory between the factory executives and the executive committee whenever the dealers have questions to be brought to the attention of the factory heads.

**Prices Guaranteed**

Through this close cooperation with the men who come in direct contact with the buying public it is hoped to gain considerable valuable assistance, particularly in the shaping of selling and advertising plans. Other details of the merchandising plan include the extension of a one-year guarantee on Templar cars and a guarantee against price decline. Another interesting phase of the plan provides special used car merchandising assistance.

## Additional Discount Allowed Nash Dealers

KENOSHA, WIS., Jan. 7—An additional discount has been granted by the Nash Motors Co. to its dealers on Nash four-cylinder cars, effective Jan. 1. This discount was made retroactive as to all four-cylinder cars, new and unused, in the dealers' hands on Jan. 1 which were shipped to them between July 1 and Dec. 31, 1923.

In its letter to dealers the Nash company makes it plain that this discount is in addition to the regular billing discount and any contingent quantity discounts earned by volume of business. Commenting on this action, C. W. Nash, president of the company, declared his company looks forward to the biggest year in its history, and is doing everything in its power to assure its dealers a sound and prosperous business in 1924.

# Men of the Industry and What They Are Doing

### Wilson Peerless Sales Manager

Earl B. Wilson, former sales manager of the branch division of the Peerless Motor Car Co., has been appointed general sales manager. This position was previously filled by D. A. Burke, who was elevated to the position of general manager of the company following the resignation of R. H. Collins. Mr. Wilson is one of a large group of executives who left the implement and vehicle field to become identified with the automotive industry. His first connection with the industry was with the Chicago branch of Buick, when Mr. Burke was in charge of that branch. Subsequently he became Buick branch manager at Memphis and Philadelphia and director of sales at the factory in Flint. Shortly after Mr. Burke became affiliated with Peerless, Mr. Wilson joined the Peerless organization to do special work in the sales department. He had not served long in that capacity when he was advanced to the position of sales manager of the branch division.

### Gould Manages Franklin

J. W. DuB. Gould has been appointed general manager of the Franklin Automobile Co., a position created to relieve President H. H. Franklin of many of the duties which have continued to mount as the business has grown. For a long time Mr. Gould has acted as a consultant for the Franklin company, with offices in New York City. He now is devoting all of his time to Franklin interests.

### General Tire Advances Officials

William O'Neil has been elevated to the presidency of the General Tire & Rubber Co., succeeding M. O'Neil, who remains as chairman of the board. William O'Neil formerly served as vice-president and general manager. Other changes include the election of C. J. Jahant, superintendent, to be vice-president; the naming of W. E. Fouso, secretary as a vice-president, and the choice of T. F. O'Neil, hitherto a director, to be secretary. Charles Herberich has been reelected treasurer. W. E. Fouso has been made assistant treasurer, and W. J. Cahill assistant secretary.

### Dinner Given Durant

The Durant Activities Association of which John J. Bergen, district representative of Durant Motors, is president, gave a dinner in honor of W. C. Durant at the Robert Treat Hotel, Newark, N. J., which was attended by more than 400 of the coworkers and friends of Mr. Durant. Carroll Downes acted as toastmaster, while the speakers included Ex-Governor Stokes, William E. Holler of the Durant executive staff, J. H. Newmark, Durant advertising manager; Dr. E. J. Cattell of Philadelphia, Bartley Doyle of the Poor Richard Club of Philadelphia and Congressman Gray. An engrossed set of resolutions was presented to Mr. Durant on behalf of the association.

## *OLD TIMERS TO MEET CHICAGO SHOW WEEK*

**CHICAGO, Jan. 9 — The Old Timers' Club, whose membership includes several hundreds of the veterans of the automotive industry, will hold its annual banquet in the gold room of the Congress Hotel the evening of Jan. 29, the week of the automobile show.**

**Harry P. Branstetter, president of the club, states that already more than 100 reservations have been received for the banquet, the main features of which will be a good dinner and high class entertainment, minus speeches.**

### Marlow Chief Engineer for Davis

J. L. Marlow of Coventry, England, formerly engineer in the Standard, Daimler, Arrol Johnston and Humber plants, has been appointed chief engineer at the Davis Motor Car Co. plant in Richmond, Ind.

### MacDonald Heads Evans Department

J. J. MacDonald has been appointed head of the estimating department of E. S. Evans & Co., loading experts. Before joining the Evans company a year ago Mr. MacDonald was assistant traffic manager of Hupp Motor Car Corp. F. L. Seeley, formerly in the purchasing department of Hudson Motor Car Co., has joined the sales staff of the Evans organization.

### Roper Joins Alvord Reamer

A. M. Roper, formerly secretary, treasurer and general manager of Roper, Harris & Dunn Co. of Greenville, Tex., has joined the Alvord Reamer & Tool Co. of Millersburg, Pa., as general sales manager of the automotive division.

### Swedish Editor Here

Carl Skanberg, automobile editor of Aftonbladet, a well-known evening paper published in Stockholm, Sweden, arrived in New York Monday on the Drottningholm for a tour of inspection among American factories. Mr. Skanberg's paper has played a leading part in the development of motoring in his country, and he comes prepared to tell American manufacturers of conditions and possibilities in Sweden. His address is American-Swedish News Exchange, 154 Nassau Street, New York City.

### Dasey Now Sales Engineer

P. J. Dasey, formerly associated with the Midwest Engine Corp. of Indianapolis, has joined the Wellman-Seaver-Morgan Co. of Cleveland as sales engineer in the engine division. The Cleveland concern makes only one kind of an engine, a 4¾ x 6, suitable for motor bus, fire apparatus, railway cars and other high speed requirements, where great power is necessary. The same engine is made also for industrial purposes.

### Hertig Touring Europe

Arthur Hertig has left New York for an extended trip through Norway, Sweden, Denmark, Finland, Holland, Belgium, France and Switzerland. He is in charge of sales in these countries for the Hayes Wheel Co., Automotive Gear Works, McQuay-Norris Manufacturing Co., and the Service Spring Co. and will appoint distributors for these concerns. Mr. Hertig formerly was export manager of the Chevrolet Motors Co. and later production and assistant sales manager of the General Motors Export Co.

### Roberts Manages Overland Branch

Walter H. Roberts, former sales manager of the Willys light division of the Electric Auto-Lite Co., has been appointed manager of the Kansas City branch of the Willys-Overland Co. He will have charge of wholesale territory embracing Kansas and parts of Missouri, Oklahoma and Arkansas.

### Brandon Named Sales Manager

John E. Brandon has been appointed sales manager for the Globe Manufacturing Co., Battle Creek, Mich., maker of Globe air compressors. Since 1915 Mr. Brandon has been in charge of Globe sales in Indiana and Illinois and for the past year has served as special factory representative in the South and Middle West.

### Knight in New Connection

Floyd A. Knight, formerly with the Berkshire Products Corp., has been made sales manager of the east-central district of the Grigsby-Grunow-Hinds Co. of Chicago, with headquarters in Cleveland. The company manufactures electrical devices and automobile accessories.

### Miller Appointed Space Buyer

Ralph Miller has been appointed space buyer of Campbell-Ewald Co. Mr. Miller joined the Campbell-Ewald organization about five years ago after being mustered out of the United States Marine service in which he had served during the war. In 1921 he was appointed assistant space buyer. He assumed the duties of space buyer several months ago and now has been permanently appointed to that position.

# Dealers Entertained During Week of Show

## Factory Executives Make Addresses to Tradesmen at Dinners and Luncheons

NEW YORK, Jan. 10—Banquets and luncheons for dealers have been one of the big features of show week. Whereas most of the previous evening affairs have come in the latter part of the week, this time they were so numerous that some of the makers found it necessary to encroach on Wednesday night, which hitherto has been sacred to the Motor and Accessory Manufacturers Association.

The General Motors units entertained thousands of their dealers in this manner, and A. P. Sloan, Jr., and other executives were kept busy filling speaking engagements. Last night in particular President Sloan talked to four different sets of dealers.

Dodge Brothers did not have its usual banquet, changing its program to daily lunches for different sets of dealers.

### Dinner for Peerless Organization

Peerless representatives, inclusive of factory officials, branch managers and Eastern distributors, in excess of 150, gathered at a get-together dinner in the Astor Hotel, presided over by John A. Cleary, advertising manager. The principal address at the business meeting which followed the dinner was made by D. A. Burke, vice-president and general manager. Brief remarks were made by Earl B. Wilson, general sales manager, and Fred R. White, chairman of the executive committee. The entertainment was in charge of J. A. Clark, manager of the New York branch.

### Rollin Dealers at Luncheon

The distributors and dealers luncheon of the Rollin Motors Co. of Cleveland at the Commodore today was attended by more than 200. The luncheon was presided over by F. R. Bump, eastern district manager. Speeches were made by Rollin White, R. T. Hodgkins, sales manager, and Walter Zimmer of the Zimmer-Keller Co., advertising counsel. Announcement was made by Mr. Zimmer that by the time of the Chicago show the company's books would be closed with the appointment of more than 150 distributors and 500 dealers, all enrolled within four months' time.

### Bulletins for Auburn Force

Auburn dealers from all parts of the country were guests at the luncheon and meeting of the Auburn Automobile Co. held at the Biltmore Hotel. After the luncheon talks were made by President J. I. Farley and leading salesmen from the various dealer organizations. R. H. Faulkner, sales manager, acted as chairman. The Auburn factory is undertaking to bring about closer connection with the selling organizations by means of monthly sales bulletins giving assistance to the dealers. Special sales features are planned which will appear every three months throughout the year.

### 300 Dealers at Velie Luncheon

More than 300 dealers and distributors attended the Velie meeting and luncheon in the Commodore Hotel, at which the merchandising and advertising plans were outlined. The meeting was conducted by F. E. Bradford, vice-president. W. O. Velie, Sr., welcomed the men. H. S. Lord, sales director, outlined the company's 1924 sales policy and he was followed by A. G. Shorey and G. W. Garland, Boston and New York distributors respectively.

### Big Willys-Overland Banquet

More than 1000 dealers attended the banquet of the Willys-Overland Co. at the Biltmore Hotel last night, when addresses were made by President John N. Willys and Sales Manager L. G. Peed. Mr. Willys outlined the growth of the company since its inception and announced a schedule of 165,000 cars for the first six months of this year. An entertaining "frolic" was staged by Ned Wayburn.

### DuPont at Chevrolet Dinner

P. S. duPont, chairman of the board, General Motor Corp.; Colin C. Campbell, vice-president and general sales manager, and B. C. Forbes, economist, were the principal speakers at the Chevrolet dinner and meeting. Approximately 1200 members of the dealer and factory sales organizations attended, representing the North Atlantic Coast territory.

### Franklin Greets New Manager

More than 400 dealers attended the luncheon of the Franklin Automobile Co., held in the grand ball room of the Commodore and presided over by Sales Manager S. E. Ackerman. A feature of the affair was the introduction to the dealers of J. W. Du B. Gould, the new Franklin general manager. Following this those dealers who had won national prizes during the past year for their sales efforts were presented.

# Bessemer Truck Moves to New Jersey Plant

PITTSBURGH, Jan. 9—The Bessemer Motor Truck Co. has ceased operations at Grove City, Pa., following the consolidation with the Amalgamated Motors Corp. All the local manufacturing products of the Grove City plant have been shipped to Plainfield, N. J., with the exception of about five carloads, which will go forward shortly.

R. M. Russell of the purchasing department, I. M. Lewis and W. H. Shillito of the sales and C. O. Keller of the engineering department will go to Plainfield to take positions with the new company.

# G. B. Griffin Chosen M. A. M. A. President

## Succeeds W. O. Rutherford, Who Remains a Member of Board of Directors

NEW YORK, Jan. 10—Following the re-election of all of the 1923 directors at the annual meeting of the Motor and Accessory Manufacturers Association yesterday, the new board met today and selected for its new leader G. Brewer Griffin, formerly secretary and assistant treasurer, to succeed the retiring president, W. O. Rutherford, vice-president of the B. F. Goodrich Co. Mr. Griffin represents the Westinghouse Electric & Manufacturing Co. of Springfield, Mass.

A. W. Copland, president of the Detroit Gear & Machine Co., was chosen first vice-president, a position he held last year; while Henry L. Horning, general manager of the Waukesha Motor Co., remains as second vice-president. E. P. Hammond, president of the Gemmer Manufacturing Co., retains the third vice-presidency, while L. M. Wainwright, president of the Diamond Chain & Manufacturing Co., was chosen treasurer, an office he has held since the formation of the association. J. M. McComb, Crucible Steel Co., was named as secretary and assistant treasurer.

The remaining directors are: E. H. Broadwell, vice-president, Fisk Rubber Co.; W. O. Rutherford, vice-president, B. F. Goodrich Co.; C. H. L. Flintermann, vice-president, Detroit Pressed Steel Co.; C. E. Thompson, president of the Steel Products Co.; E. P. Chalfant, chairman of the board of the Gill Manufacturing Co., and Eugene B. Clark, president of the Clark Equipment Co.

M. L. Heminway is general manager of the association.

### Annual Banquet of Association

NEW YORK, Jan. 10—Following precedent, there were no speeches last night at the annual banquet at the Astor of the Motor and Accessory Manufacturers Association. Instead the 600 guests enjoyed the entertainment provided by Sidney S. Meyers, counsel for the association.

This entertainment consisted of a special program in three parts, entitled "In Clover," bringing together a galaxy of stars of grand opera, concert and musical comedy, making the most elaborate affair in the history of the association.

John Charles Thomas, the baritone; Jean Gerardy, the Belgian 'cellist, and Suzanne Keener, the coloratura soprano of the Metropolitan Opera Co., started in the musical end of the program, while in a lighter vein W. C. Fields, the comedian co-star of "Poppy," amused the parts makers. The finale was the presentation of the entire second act of "Mr. Battling Buttler" from the Selwyn Theater.

# Export Managers Act on Battery Ignition

## Recommended That All Left-Hand Drive Cars Shipped After July Be So Equipped

NEW YORK, Jan. 9—Export managers of the National Automobile Chamber of Commerce, holding their annual meeting here today, voted a recommendation to the directors of the Chamber, stipulating that all left hand drive cars exported after July 1 be equipped with battery ignition. Under the resolution, the directors were asked to adopt this policy for all member companies, with the additional provision that one-half of all shipments of such cars be so equipped after Jan. 1.

The action today was the culmination of a lengthy discussion concerning the merits of battery and magneto ignition that has extended over several years. The resolution was proposed by R. J. Archer, who directs the Overland exports, and was endorsed by H. M. Robbins, the Dodge Brothers export manager, and H. M. Salisbury of the Maxwell-Chalmers-Chrysler.

### G. M. Units Adopt Policy

N. C. Tuxbury, representing the General Motors Export Co., announced that Buick cars had been shipped with battery ignition only for several years, and that a similar policy had been adopted for Olds, Oakland and Chevrolet. Magneto-equipped Chevrolets are still going to a few territories, but arrangements have been completed so that this equipment will be eliminated within the next few months.

The export managers who assembled here were thoroughly optimistic as to the outlook for this year, and it was generally stated that the 1923 records of approximately 325,000 cars and trucks would be largely exceeded. Many territories which were not heavy purchasers a year ago are now buying automobiles in larger numbers and, with economic conditions generally brightened, the export executives look for a much improved business during the coming months.

### More Cars to South Africa

P. J. Stevenson, trade commissioner of the Bureau of Foreign and Domestic Commerce in South Africa, estimated that the 9000 vehicles imported in 1924 would be increased to at least 12,000 this year. Dealers have recently enjoyed a greater prosperity than at any other time, and Stevenson said that a continuing demand might be expected.

J. D. Mooney, vice-president of General Motors Corp., summed up the promising conditions encountered in New Zealand, Australia and India on his recent trip around the world. He added, however, that the development of the light car in England had seriously affected the markets for American cars there, and he recommended that the Chamber and the industry work toward reducing the landed costs of automobiles and the lowering of motoring costs in the foreign territories.

Credit, finance and advertising were other problems which came in for consideration, and H. B. Phipps, the Hudson-Essex export manager, discussed the necessity for further strengthening of the American banking facilities throughout the world. Other speakers on this subject were E. F. Gaudineer, foreign credit manager, Irving Bank-Columbia Trust, and James Reiner of National Surety Co.

# Schwab Recommends Lower Selling Costs

(*Continued from page* 94)

that they did not meet. My advice to this great industry is: Stop them if you have to because there are many in all industry that have no right and legitimate place in industry. Stop them and scrap them if you will. But consolidate your interests so that economies may be practiced by reason of the great overhead that follows all these individual efforts.

That to me is the great problem which you will work out in the next ten years. The better you make your cars and the cheaper you put them in the hands of the customer, the greater will be the use and the greater the demand.

Edward J. Cattell of the Philadelphia Chamber of Commerce was the second speaker of the occasion.

The annual decorations for meritorious service were awarded to the following: A. P. Sloan, Jr., president General Motors Corp.; F. J. Haynes, president Dodge Brothers; Walter P. Chrysler, president Maxwell Motor Corp.; Roy D. Chapin, chairman, Hudson Motor Car Co., and Edward V. Rickenbacker, vice-president Rickenbacker Motor Co.

Roy D. Chapin, vice-president of the N. A. C. C., officiated as toastmaster.

# Shippers' Regional Board Is Organized in New York

NEW YORK, Jan. 7—The automotive industry is represented in the Shippers' Regional Advisory Board for the Middle Atlantic States, which was created at a meeting here last week of shippers and railroad executives in this territory, acting independently of the Interstate Commerce Commission and other Government agencies. This is the eighth board organized by shippers and distributors.

The organization will not be concerned with rate-making, its function being to supply the railroads with accurate information concerning the public's requirements.

Of the numerous committees appointed by the new organization, the Automobile Committee has as chairman James S. Marvin, general traffic manager of the National Automobile Chamber of Commerce; Automotive Parts and Accessories, Herman Deuster, manager of the transportation department of the Motor and Accessory Manufacturers Association, and Rubber, R. H. Goebel.

# Dodge Shows Dealers Department Details

## Trade Is Given Opportunity to Become Acquainted with Factory Workings

NEW YORK, Jan. 9—Dodge Brothers dealers attending the New York show were introduced to an entirely new style of show week reception, the company establishing in its usual show week headquarters, the Pennsylvania roof, a temporary office of each of its departments having relations with dealers, with the invitation that the dealers use these to acquaint themselves fully with all of its policies affecting them.

The headquarters had the general aspect of an exhibit, with the departments marked off by specially designed pillars and hangings, created by Joseph Urban. It was maintained for the first four days of the show, being open only between the hours of 10 a.m. and 4 p.m., with a buffet luncheon served at noon to the dealers attending each day. The same program will be followed during the weeks of the Chicago and San Francisco shows. The entire dealer organization is expected to attend one of the exhibits according to territory.

### Activities Impressed on Dealers

Every effort was made to impress upon dealers a thorough knowledge of factory activities affecting themselves. These ranged from reasons why cars are loaded in a certain manner and routed over certain railroads, to what dealers could best do to meet used car conditions. In a sense the week amplified through personal contact with department heads what the company has been doing through literature and through territorial men during the year.

Dealers are urged to organize for used car merchandising during 1924 for the reason that a dealer handling trade-ins would have 50 per cent more prospects to draw from. Percentages of trades involved in sales in 1922 were shown as 39.8 per cent, and in 1923 as 55.5. The year opening was shown by a question mark. In handling used cars, the company spoke for separate sales organization, buying on a cash basis, reconditioning and supplementing trade-ins by cars bought in the open market to reduce used car overhead per unit.

### Rural Market Undersold

Development of the rural markets was urged as having been far undersold in the last few years. Methods of developing sales in all territories were outlined. Sales possibilities, according to registrations and competitive sales in each of the territories of the United States, were detailed. Company policies on distribution under its minimum and maximum plans were shown, the minimum to cover dealer overhead, the maximum according to outside conditions.

# $9,280,032 Reported As Nash Net Income

## Earnings for Year Ended November 30 Are Equivalent to $29.56 Share

NEW YORK, Jan. 9—Net income of the Nash Motors Co. of Kenosha, Wis., for the fiscal year ended Nov. 30, 1923, amounted to $9,280,032, after deducting all expenses and after provision for Federal income taxes of $1,442,230. This is equivalent to $29.56 a share after preferred dividends.

An increase in the common capitalization outstanding from approximately 55,000 shares to 273,000 shares accounts for the lowering in earnings per share in the figures of the year. Net income for 1923 was substantially higher than for the preceding year.

The annual statement was given out following the meeting of the Nash directors at which an extra dividend of $1.50 a share on the common stock, in addition to the regular semi-annual dividend of $3.50 a share, was declared. The regular quarterly dividend of $1.75 on the preferred also was announced, all dividends being payable Feb. 1 to stock of record Jan. 18.

The balance sheet shows real estate, plant and equipment, at cost, listed at $8,634,401. The reserve for depreciation against this is $3,665,071, leaving the property account at $4,969,329. Current assets amount to $28,441,342 and current liabilities to $1,792,864, leaving net working capital of $26,648,478.

Discussing the annual statement, President C. W. Nash says:

On Feb. 1, 1923, the company retired its $3,500,000 outstanding balance of its original preferred stock. During the year the company retired $619,100,000 at par of the preferred A stock, which is more than sufficient to take care of the sinking fund requirements. In addition to this, during the year the company paid its stockholders in cash dividends $2,845,850. Despite this, the cash position of the company continues to be satisfactory, showing an increase of $3,104,863 over a year ago; the total at the close of the year being $21,692,250 for cash in hand, in banks and in government securities.

# Organizations Consider Road Finance Principles

NEW YORK, Jan. 7—Further consideration was given the principles of highway financing agreed upon by the Bureau of Public Roads, the National Association of State Highway Officials and the National Automobile Chamber of Commerce by the Highway Transport Committee, made up of representatives of the three bodies, at sessions held here Saturday and today.

It was found that there were no differences of opinion among the members of the committee, and it was decided to add explanatory notes to each of the principles agreed upon, after which they will be sent to the membership of the two associations with a request that they express their views before final action is taken.

A proposed uniform traffic code was to have been considered, but this subject was deferred until a later meeting. This will be the next important question taken up, however.

The committee listened to an address by Dr. Richard T. Ely of the University of Wisconsin, an eminent economist, on the subject of land values.

# Martin-Parry to Produce New Line of Dump Bodies

YORK, PA., Jan. 7—The Martin-Parry Corp. held a three-day convention of branch and district managers last week, at which plans for 1924 were outlined and discussed. At this convention it was announced that the company will offer for this year a complete line of all-steel dump bodies, in addition to the regular 38 Standard models.

The dump body comes equipped with either a hand hoist or gravity hoist mechanism. The garbage body comes with or without lids.

# New Coupe and Sedan Produced by Cadillac

NEW YORK,, Jan. 9—Two closed cars have been added by the Cadillac Motor Car Co. to its line, a Victoria coupé at $3,275 and a seven-passenger sedan at $3,585, which are designed especially to meet requirements of suburban trade.

The other coupé and sedan of the line are priced at $3,875 and $4,250. The difference in price is represented principally in details of body work and upholstery, no options being offered in interior decoration or paint.

# A. A. A. Will Organize New Traffic Committee

NEW YORK, Jan. 7—A meeting of the executive board of the American Automobile Association was held at the Biltmore today at which it was decided to create a fifth standing committee which is expected to be one of the most important of all the A. A. A. bodies.

This is to be the Traffic Board which will be in charge of a paid executive, while the committee will be made up of the greatest authorities on the subject of traffic safety and city planning that the A. A. A. can round up.

In a way this committee will be somewhat similar to the National Automobile Chamber of Commerce's Traffic and Safety Committee of which George M. Graham is chairman.

The A. A. A. board also adopted the principles on taxation already passed upon by other members of the Motor Vehicle Conference, except that it changed the conference's definition of an improved road to mean a main line trunk highway instead of the somewhat indefinite "improved highway" which might mean an ordinary dirt road.

# Receiver to Operate Duesenberg Factory

## Merchandise Creditors' Claims Put at $200,000—Interesting Outside Capital

INDIANAPOLIS, Jan. 7—Upon petition of the Acme Works, Inc., William T. Rasmussen has been appointed as receiver of the Duesenberg Automobile & Motors Co. by Judge Bash of the Probate Court. This is declared to be a friendly receivership, and Mr. Rasmussen has been empowered by the court to continue the operation of the plant. It is understood that the assets are $1,600,000, and that the merchandise creditors' claims amount to only $200,000.

For the past month it is reported that a deal has been under consideration to straighten out the financial end of the business, and with that end in view outside capital had been approached. The deal still is hanging fire, and it is hoped that the receivership will permit its being put through.

Under the management of Chester S. Ricker, the company has been making rapid progress, and it is said that last fall it turned the corner, the factory having operated on a paying basis for the months of September, October and November. It is said that the present difficulty will be straightened out, and it is believed that the company soon will free itself from its present situation.

# Tax Collections Passed Mark of November, 1922

WASHINGTON, Jan. 9—Excise taxes collected from the automotive industry during November show an increase of $3,146,904 over those of the corresponding month of 1922. Total excise taxes for November of last year, collected from the sale of automobile trucks, automobile passenger cars, motorcycles and automobile accessories amounted to $13,196,922, compared with $10,050,018 for November, 1922.

The collection from trucks and wagons during November, 1923, was $789,284, compared with $915,126 in November, 1922; from passenger cars and motorcycles, November, 1923, was $9,543,000, compared with $5,558,863 in November, 1922; automobile accessories and parts, November, 1923, $2,864,636, compared with $3,576,023 in November, 1922.

The total of excise taxes for the first eleven months of last year, according to figures made public by the Bureau of Internal Revenue, collected from the automotive industry is $66,140,327.

### 2600 YELLOW CABS IN CHICAGO

CHICAGO, Jan. 7—Reporting on 1923, the Yellow Cab Co. carried 22,828,777 passengers as against 18,762,914 in 1922. It increased its equipment from 1614 to 2600 cabs.

# *FACTORY EXECUTIVES ATTENDING SHOW*

Anderson—J. W. Anderson, president; W. A. Anderson, vice-president, and K. L. Camp, purchasing agent.

Apperson—D. C. McCord, president; Morris Rothschild, chairman of the board; E. M. Lubeck, general sales manager; R. M. Kelbie, assistant sales manager; John T. Powell, southern district representative; A. M. Robbins, Boston branch manager, and George Lynn, Chicago branch manager.

Auburn—J. I. Farley, president; E. H. Gilcrest, sales manager, and R. A. Sears, advertising manager.

Buick Motor Co.—H. H. Bassett, president and general manager; E. T. Strong, sales manager; C. W. Churchill, director of sales; A. Brown Batterson, advertising manager; Harry Daniels, publicity director; E. A. Bower and E. A. DeWaters.

Cadillac Motor Car Co.—H. H. Rice, president; Lynn McNaughton, vice-president, and Jay Dunivan, distribution manager.

Chandler—F. C. Chandler, president, and George M. Graham, vice-president and sales manager.

Checker Cab—W. L. Kroneberger, general sales manager, and C. Goodspeed, chief engineer.

Chevrolet Motor Co.—Colin C. Campbell, general sales manager; G. Frank Lord, advertising manager; O. E. Hunt, chief engineer; C. B. Baldwin, service manager, and Ray Dawson, assistant sales manager.

Cleveland—J. V. Whitbeck, president; S. J. Black, vice-president; W. V. Westcott, eastern sales manager; J. V. Mahoney, special representative; E. J. Wright, special representative; J. T. Nicholson, service manager, and C. H. Callahan, service department.

Cole—J. J. Cole, president; J. F. Morrison, secretary; M. B. Covert, chief engineer, and S. J. Kuqua, vice-president.

Columbia Motor Co.—J. G. Bayerline, president; D. J. Willoughby, sales manager, and Norman I. Taylor, advertising counsel.

Davis—George W. Davis, president; Walter C. Davis, vice-president; C. C. Lee, New York State representative; G. E. Matteson, Eastern Ohio representative, and J. C. O'Donnell, New England representative.

Dodge Brothers—Fred J. Haynes, president; John R. Lee, assistant to president; A. T. Waterfall, vice-president; C. W. Matheson, vice-president; H. V. Popeney, secretary; John A. Nichols, Jr., general sales manager; R. N. Harger, advertising manager; John H. Gordon, director distribution; C. H. Jennings, director service, and George H. Phelps, advertising counsel.

Dort—J. D. Dort, president; Jno. D. Mansfield, sales manager; Elijah G. Poxson, assistant sales manager; C. R. Tieboldt, eastern sales manager; W. J. Champ, district representative, and W. M. Buck, sales engineer.

Du Pont—E. Paul du Pont, president; J. C. Packard, vice-president and treasurer, and George H. Dreher, general sales manager.

Durant Motors—W. C. Durant, president; Carroll Downes, president Star Motors; F. W. Hohensee, in charge of operations; W. W. Murphy, treasurer, and J. H. Newmark, manager sales promotion.

Elcar—F. B. Sears, president; W. H. Patterson, vice-president; M. E. Graffis, secretary, and W. H. Denison, treasurer.

Elgin—H. J. McDuffee, president; J. C. Morgan, sales manager; M. H. Blank, works manager, and N. B. Reisinger, special representative, sales department.

## *WESTERNERS ARRIVE IN 30 EXTRA TRAINS*

**NEW YORK, Jan. 7—Thirty extra trains brought the western crowds to the show today, all arriving at the Grand Central Terminal between the hours of 7 and 10:30 a.m.**

**The Twentieth Century from Chicago came in six sections, a new record for this train.**

**The Wolverine came from Detroit in three sections, the Detroiter in three, the Fifth Avenue Special in three, the New York Special in two and the Beaver in two.**

Franklin—H. C. Blagbrough, assistant to the president; Ralph Murphy, assistant to vice-president; S. E. Ackerman, sales manager; Gaylord A. Hoyt, assistant sales manager, and H. H. Goodhart, advertising manager.

Gardner—Russell Gardner, Jr., president; Fred Gardner, vice-president; A. R. Yeldell, sales manager, and B. C. Bell, engineering department.

Gray Motor Co.—F. L. Klingensmith, president; F. F. Beall, vice-president; Henry W. Burritt, secretary; W. M. Purves, sales manager; Rex F. Glassen, advertising manager; O. J. Mulford, Eugene Rice and R. R. Martell.

H. C. S.—Harry Stutz, president and Frank B. Willis, sales manager.

Haynes—Elwood Haynes, president; Hayden Eames, general manager; S. E. Burke, general sales manager, and Frank Nutt, chief engineer.

Hudson Motor Car Co.—R. B. Jackson, president; W. J. McAneeny, treasurer; O. H. McCornack, vice-president, sales; H. B. Phipps, export manager; Harry Moock, sales manager; W. A. James, I. G. Segwalt, H. P. Federspiel, A. G. Fleming, J. E. McLarty and A. J. Eldred

Hupp Motor Car Corp.—C. D. Hastings, president; DuBois Young, vice-president; O. C. Hutchinson, sales manager; Frederick Dickinson, advertising manager: J. H. Teagen, export manager; C. E. Salisbury, service manager; F. B. Sides, assistant sales manager; R. J. Taylor, purchasing agent; F. W. Munro, A. J. Neerkin, G. A. Gastineau, J. F. Bowes, I. Ornberg, George Roehm and F. E. Watts.

Jordan—E. S. Jordan, president; W. B. Riley, general sales manager, and Russell Beggs, chief engineer.

Kissel—George A. Kissel, president; Will Kissel, secretary-treasurer; John Tainsh, vice-president and director of sales, and John Lynch, sales manager.

LaFayette—C. W. Nash, president; Earle C. Howard, vice-president and general sales manager; Earl Gunn, chief engineer; C. R. Hood, service manager, and D. B. Skinner, advertising manager.

Lexington—W. P. Herod, general manager; Herbert L. Clay, sales manager; Ot Loesche, sales promotion; Joseph Severance, sales promotion, and G. U. McKethan, district manager.

Lincoln—Gaston Plantiff, manager, eastern division, C. A. Esslinger, ass't. manager.

Marmon—Walter C. Marmon, president; Col. Howard Marmon, vice-president and chief engineer; Col. E. S. Gorrell, vice-president; H. L. Purdy, treasurer; H. Brooks, sales manager; A. J. Rogers, assistant sales manager; S. L. Harding, sales department; Porter Smith, district sales manager, and Homer McKee and Leo N. Burnett, advertising counsel.

Maxwell Motor Corp.; Chalmers Motor Corp.; Chrysler Motor Corp.—W. P. Chrysler, chairman board directors; Joseph E. Fields, general sales manager; John S. Plath, director sales; W. D. Mitchell, vice-president; W. J. Mattimore, advertising manager, and B. E. Hutchinson, vice-president.

Moon—Stewart McDonald, president; Fred H. Rengers, general sales manager; Neil E. McDarby, assistant sales manager; George H. Kublin, chief engineer; Oliver A. Life, advertising manager; David McCosker, assistant to the president, and E. M. Todd, district sales manager.

Nash—C. W. Nash, president; J. T. Wilson, vice-president; W. H. Alford, vice-president; E. H. McCarty, general sales manager, and Ellis Travers, advertising manager.

Oakland Motor Car Co.—G. H. Hannum, president; C. J. Nephler, sales manager; W. R. Ytacy, assistant sales manager; W. E. Fellowes, advertising manager; B. Jerome, chief engineer; E. M. Orr, B. B. Kimball, T. Mair, W. D. Appel, and C. O. Miller.

Olds Motor Works—A. B. C. Hardy, president; Guy H. Peasley, sales manager; R. K. Jack, engineer; E. J. Shassberger, advertising manager; R. M. Hatfield, service manager, T. F. O'Brien, promotion manager.

Packard Motor Car Co.—Alvan Macauley, president; J. G. Vincent, vice-president: H. H. Hills, vice-president; R. E. Chamberlain, sales manager, and H. N. Davock, service manager.

Paige-Detroit—H. M. Jewett, president; Henry Krohn, vice-president in charge sales; T. T. Bradley, vice-president in charge purchases; W. A. Wheeler, vice-president production division; Andy Bachle, vice-president engineering, and W. K. Towers, advertising manager.

Peerless—D. A. Burke, vice-president and general manager; Earl B. Wilson, general sales manager; S. I. Kirby, assistant general sales manager; F. A. Trester, secretary; J. F. Porter, treasurer; F. W. Slack, chief engineer; Herman Schwarze, electrical engineer; W. R. Milner, body engineer; John A. Cleary, advertising manager; W. J. Schlund, technical manager; C. R. Cunliffe, Philadelphia branch manager; J. W. Barber, Cleveland branch manager; C. A. Engelbeck, Chicago branch manager; A. J. Brechtel, San Francisco branch manager; J. L. Snow, Boston branch manager; A. M. Porter, Washington branch manager; L. R. Bunn and F. M. Benson, traveling men.

Pierce-Arrow—Col. Charles Clifton, chairman of the board; Myron E. Forbes, president; Lawrence Corcoran, general sales manager, and Thomas O'Rourke, passenger car sales manager.

Premier—F. I. Barrows, president; F. R. Leeds, sales manager, and Arthur Dixon, treasurer.

R. & V.—H. A. Holder, president.

Reo—R. H. Scott, president and general manager; R. C. Rueschaw, sales manager; D. E. Bates, secretary, and H. T. De Hart, advertising manager.

Rickenbacker Motor Car Co.—B. F. Everitt, president; E. V. Rickenbacker, vice-

(*Continued on page* 112)

# Producers Swinging Toward Big Output

## Moving in Direction of Capacity Operations Following December Slack

NEW YORK, Jan. 7—Following the usual period of inventory taking and plant readjustment in preparation for renewed activities with the turn of the year, automobile producing plants are swinging back toward capacity operation. January output will be in excess of the total for December, which, despite the closing of some plants for a brief time and the interruption of activities of others because of the holidays, reported an output approximating 300,000.

December was a surprising month, showing only a slight falling off in its output totals from November and rounding out a year with more than 4,000,000 cars and trucks produced. This was a new record in the production history of the industry. Throughout the year, starting with March, schedules were maintained at an exceptionally high rate, no month going below the 300,000 mark.

### Dealers Stocking Cars

Some of last month's output has been shipped to dealers or warehoused to meet spring demand and forestall any possible shortage when the heaviest demand of the year comes. Stocks will be permitted to accumulate in greater volume from now on, although in many sections of the country continued demand has prevented any stocking of cars up to this time. December sales generally were far ahead of a year ago and showed less than the normal decline.

Conditions as they affect future automobile sales are reported to be excellent, and manufacturers are basing their production schedules for the first quarter, at least, on this outlook. While buyers in the past year have come principally from cities, it is felt that farm communities will absorb a greater percentage of cars this year and will offer a better outlet for factory production than in the past. This increased buying on the part of the farmer is expected to be felt by truck producers as well, resulting in augmenting production by that branch of the industry.

Truck production has held up well during the year without the marked increase evident in the passenger car field. As industrial conditions improve, truck production will mount and, with the greater buying by the farmer, the present year should prove noteworthy in this branch.

Parts makers are keeping to high schedules consonant with the program of car and truck producers and an upward movement is noted in tire production.

## FINANCIAL NOTES

**Lancaster Tire & Rubber Co.** stockholders have approved the proposed authorization of a new issue of $1,000,000 Series B 7 per cent preferred in addition to the present and preferred and also a new common issue of 24,000 shares, no par. Holders of present common receive one new B preferred share and two new no par common shares for each old share.

**Mullins Body Corp.** has declared the regular quarterly dividend of $2 on the preferred stock, payable Feb. 1 to stock of record Jan. 15.

**Kelly-Springfield Tire Co.** has declared a quarterly dividend of $2 a share on the 8 per cent preferred stock, payable Feb. 15 to stock of record Feb. 1.

**Fisher Body Corp.** has declared the regular quarterly $2.50 common dividend, payable Feb. 1 to stock of record Jan. 21.

# Federal Truck Planning Merchandising Campaign

NEW YORK, Jan. 9—Federal Motor Truck Co. is planning an important merchandising campaign in connection with its new Federal Knight express, which is being shown for the first time at the New York show. The company plans to merchandise approximately 10,000 of these during the coming year and will make large additions to its dealer organization, both in the United States and foreign countries.

Through the use of the Knight motor in the truck, the only truck so powered on the American market, the company will be in position to make special appeal to dealers handling cars using this engine, as their service facilities are practically already complete to handle the model.

# Bureau Needs More Funds for Brake Lining Tests

NEW YORK, Jan. 10—Announcement was made at the monthly meeting of the Asbestos Brake Lining Association at the McAlpin yesterday that the Bureau of Standards of the Department of Commerce will be unable to continue the work of testing automobile brake linings, because of lack of funds.

Inasmuch as this work has been of great value to brake lining makers and is credited with having saved the car owners millions of dollars, it is expected that the American Automobile Association and the National Motorists Association will launch campaigns to induce Congress to grant the necessary appropriation.

## BANK CREDITS

*Written exclusively for* AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

The new year opened with an attitude of general satisfaction with the record of 1923 and expectations of continued good business in 1924. Retail trade in most sections is stimulated by the colder weather.

Pig iron production in December amounted to 2,920,928 tons, comparing with 2,894,295 tons in November. The average daily output, however, declined from 96,476 to 94,225 tons. The total output for the year was a new high record, amounting to 40,059,254 tons, an advance of 49 per cent from the 1922 total and of about 2½ per cent from the previous high mark established in 1916.

Car loadings in the week ended Dec. 22 showed a further seasonal decline, numbering 877,257 and comparing with 899,522 in the preceding week.

Revised figures of foreign trade for November show exports of $400,190,707 and imports of $291,454,880, with an export balance of $108,735,827. As compared with November, 1922, exports increased about 5½ per cent, while imports show a nominal decline.

The Fisher index of wholesale commodity prices declined fractionally last week, standing at 150.9 as against 151 the preceding week. Dun's index on Jan. 1 was 189.930, comparing with 190.923 on Dec. 1 and 185.637 on Jan. 1, 1923.

### Increase in Cash Reserves

The return of cash to the banks following the holiday period was reflected in the statement of the Federal Reserve banks for the week ended Jan. 2, which showed an increase in cash reserves of $34,400,000 and a decline in the circulation of Federal Reserve notes of $95,100,000. A decline of $26,000,000 in earning assets was due to a decrease in discounted bills to $59,000,000.

Loans of reporting member banks during the fifty-two weeks ended Dec. 26 increased $605,000,000, while investments declined $267,000,000. Net demand deposits declined $221,000,000, and accommodation at Reserve banks increased $205,000,000.

Call money rates moved downward last week, ranging from a high point of 6 per cent on Monday to as low as 4½ per cent later in the week. Time loan rates were stationary at 5 per cent.

### OWNERS AT LUNCHEON

NEW YORK, Jan. 9—The Hunt Motor Car Co., Rickenbacker distributor, has just held its second annual owners luncheon. More than 200 owners from the metropolitan territory were present and heard a talk by E. V. Rickenbacker, vice-president of the Rickenbacker Motor Co.; LeRoy Peletier, advertising manager, and C. F. Hopkins of the Underwood Typewriter Co., Brooklyn, a Rickenbacker owner.

# Prices at Delivery Will Be Advertised

## Rickenbacker Adopts New Policy —Will Manufacture Cars Fully Equipped

NEW YORK, Jan. 9—In connection with a reduction of $40 in the price of its open models, Rickenbacker Motor Co. has announced that it will build its complete line fully equipped, and will advertise it according to its delivered price. Closed model prices remain as formerly, but these will practically represent a reduction in view of the extra equipment the cars will carry.

In announcing its intention to determine the freight and handling cost on every car at the factory and to advertise prices in each section of the country according to these, the company declares its determination to inspire public confidence in the dealer and in the factory.

Additional prices sought by dealers in the industry through the medium of juggling delivery prices have made list prices meaningless, and factory efforts on merchandising have been largely nullified through unfair or unsound dealer practice.

Action of this sort is necessary throughout the industry, said E. LeRoy Pelletier, advertising manager, or many dealers of the country will be finding themselves defendants in suits to recover excess charges that they have made to owners.

# Tire Casing Production Increased in November

NEW YORK, Jan. 9—Statistics compiled by the Rubber Association covering inventory, production and shipments for all of 1922 and eleven months of 1923 are as follows:

PNEUMATIC CASINGS

| 1922 | No. Mfrs. Reporting | Inventory | Production | Shipments |
|---|---|---|---|---|
| January | 66 | 4,174,216 | 2,055,134 | 1,596,806 |
| February | 66 | 4,691,329 | 2,084,308 | 1,562,365 |
| March | 63 | 5,183,286 | 2,645,790 | 2,073,963 |
| April | 65 | 5,464,336 | 2,401,187 | 2,086,651 |
| May | 65 | 5,523,095 | 2,721,503 | 2,639,273 |
| June | 64 | 5,042,147 | 2,838,890 | 3,133,260 |
| July | 63 | 4,834,106 | 2,476,636 | 2,695,095 |
| August | 63 | 4,629,392 | 2,905,209 | 3,029,823 |
| September | 64 | 4,612,037 | 2,504,744 | 2,502,106 |
| October | 64 | 4,682,958 | 2,674,662 | 2,588,770 |
| November | 62 | 4,964,976 | 2,733,134 | 2,379,708 |
| December | 59 | 4,599,208 | 2,656,942 | 2,934,079 |
| 1923 | | | | |
| January | 62 | 4,695,916 | 3,127,270 | 2,994,297 |
| February | 60 | 5,224,387 | 3,217,987 | 2,588,639 |
| March | 58 | 5,670,601 | 3,865,726 | 3,332,637 |
| April | 56 | 6,088,272 | 3,539,326 | 2,976,160 |
| May | 57 | 6,906,594 | 3,659,986 | 2,757,764 |
| June | 55 | 7,040,600 | 2,956,943 | 2,502,185 |
| July | 54 | 6,471,124 | 1,992,989 | 2,539,425 |
| August | 58 | 6,058,387 | 2,355,915 | 2,807,432 |
| September | 60 | 5,397,557 | 2,029,581 | 2,623,775 |
| October | 59 | 4,876,352 | 2,361,340 | 2,819,583 |
| November | 55 | 4,689,329 | 2,399,725 | 2,456,296 |

INNER TUBES

| 1922 | No. Mfrs. Reporting | Inventory | Production | Shipments |
|---|---|---|---|---|
| January | 66 | 5,246,647 | 2,343,393 | 2,889,724 |
| February | 65 | 6,141,956 | 2,596,774 | 1,702,583 |
| March | 63 | 6,991,118 | 3,017,511 | 2,090,737 |
| April | 65 | 7,230,096 | 2,650,573 | 2,329,343 |
| May | 65 | 7,189,552 | 2,970,696 | 2,938,947 |
| June | 64 | 6,186,534 | 3,130,629 | 3,973,679 |
| July | 63 | 5,675,839 | 3,068,199 | 3,630,744 |
| August | 62 | 5,207,228 | 3,808,224 | 4,220,055 |
| September | 64 | 5,164,757 | 3,501,442 | 3,558,971 |
| October | 64 | 5,488,033 | 3,787,758 | 3,420,680 |
| November | 61 | 6,210,053 | 3,850,908 | 3,075,023 |
| December | 59 | 5,732,125 | 3,411,074 | 3,825,949 |
| 1923 | | | | |
| January | 62 | 5,838,310 | 3,951,885 | 3,748,651 |
| February | 60 | 6,771,958 | 4,039,202 | 3,001,697 |
| March | 57 | 7,740,945 | 4,875,414 | 3,828,315 |
| April | 55 | 8,394,184 | 4,259,558 | 3,535,635 |
| May | 57 | 9,292,223 | 4,317,537 | 3,414,115 |
| June | 54 | 8,924,326 | 3,590,011 | 3,581,060 |
| July | 52 | 7,527,281 | 2,666,354 | 3,942,247 |
| August | 53 | 6,950,578 | 2,577,922 | 4,304,034 |
| September | 55 | 6,457,455 | 3,254,575 | 3,683,574 |
| October | 55 | 6,898,425 | 3,855,244 | 3,595,737 |
| November | 53 | 6,693,639 | 3,451,716 | 3,422,426 |

SOLID TIRES

| 1922 | No. Mfrs. Reporting | Inventory | Production | Shipments |
|---|---|---|---|---|
| January | 11 | 181,769 | 40,224 | 33,294 |
| February | 11 | 183,448 | 39,492 | 36,805 |
| March | 11 | 182,197 | 49,433 | 48,350 |
| April | 11 | 173,748 | 46,664 | 52,309 |
| May | 11 | 170,904 | 57,640 | 60,711 |
| June | 11 | 169,808 | 66,089 | 63,408 |
| July | 11 | 176,375 | 71,505 | 60,425 |
| August | 11 | 189,698 | 84,313 | 69,435 |
| September | 11 | 200,016 | 82,767 | 66,797 |
| October | 11 | 213,942 | 85,480 | 71,275 |
| November | 11 | 234,684 | 85,775 | 61,466 |
| December | 10 | 244,061 | 77,221 | 64,570 |
| 1922 | | | | |
| January | 11 | 262,462 | 83,343 | 60,611 |
| February | 11 | 270,191 | 75,457 | 63,394 |
| March | 11 | 265,843 | 79,788 | 77,144 |
| April | 10 | 260,631 | 71,468 | 72,609 |
| May | 10 | 268,323 | 77,288 | 67,147 |
| June | 10 | 283,435 | 72,445 | 52,126 |
| July | 10 | 263,891 | 42,345 | 45,219 |
| August | 10 | 262,810 | 48,141 | 45,925 |
| September | 10 | 249,379 | 37,074 | 45,971 |
| October | 10 | 234,945 | 37,285 | 48,065 |
| November | 11 | 213,686 | 32,577 | 49,471 |

"Production" and "Shipment" figures cover the entire month for which each report is made. "Inventory" is reported as of the last day of each month.

"Inventory" includes tires and tubes constituting domestic stock in factory and in transit to, or at, warehouses, branches (if any), or in possession of dealers on consignment basis, and as a total represents all tires and tubes still owned by manufacturers as a domestic stock.

"Shipment" includes only stock forwarded to a purchaser and does not include stock forwarded to a warehouse, branch, or on a consignment basis, or abroad.

# INDUSTRIAL NOTES

**Fitzgerald Manufacturing Co.** making the Star line of electrical specialties, has let a contract for an addition to its factory at Torrington, Conn. This is to be an extension of the present building of approximately 300 feet long and two stories high and to be completed in April. This addition is only one of several the company is planning.

**A-C Manufacturing Co.**, Chicago, has purchased the patents and materials on hand for Alford springs from Andrew Hoffman & Co. and hereafter will market these springs as A-C auxiliary springs for Fords. They will be sold through A-C brake distributors.

**Gabriel Manufacturing Co.** has just completed a new office building at Cleveland. The company is planning the production of a minimum of 10,000 Gabriel snubbers a day as against 7000 daily in 1923.

## FORD CONTRACTS FOR PLANT

KANSAS CITY, MO., Jan. 9—A $400,000 contract for structural work on the new unit of the Ford Motor Co.'s assembling plant here has been awarded. This contract is one of three in the company's expansion program. The contract covers an addition to the power plant as well as the new assembling building.

# METAL MARKETS

So far no change in the steel market's character has become noticeable in the new year. The U. S. Steel Corp.'s unfilled tonnage statement to be made public after noon Jan. 10 is likely to exert some influence on sentiment. In the absence of an increase in the leading interest's backlog of orders, lessening of the decline in bookings, which set in last spring, will be hailed as a harbinger of quickened demand. Sales managers for both steel as well as non-ferrous metal products interests derived much comfort from the contact with automotive consumers which the National Automobile Show made possible, and on the basis of which very optimistic views were voiced regarding the volume of automotive demand that may be reasonably looked for in 1924 in the metal markets.

Significant are reports of a resumption of scrap buying by the leading steel interest. This is the second buying movement of this sort since the slump of last year, and for a long-distance reading of the steel market barometer heavy scrap purchases furnish a symptom well worth the closest observation, although by no means an infallible indication of greater demand for steel products. It does denote, however, that the steel mills are confident of the earlier coming of more spirited competition for their products among buyers.

Automotive purchasing agents must now keep their eyes peeled for the manner in which buyers in other consuming industries approach the steel market. Some of this demand may turn out before long to be noisy, because of its being massed instead of spread over a longer period, thus distorting temporarily the picture of the demand over the whole year. Non-integrated sheet rollers are reported to have contracted for sheet bars on a $42.50 basis, and additional tonnages of full-finished automobile sheets for shipment during the second half of the current month have been placed at full prices. Manufacturers of bolts and nuts report a very good demand from the automotive industries. The price schedule for bolts remains unchanged while that for pressed nuts has been revised slightly downward. The strip steel situation is unaltered. Alloy steel specialists express themselves as well pleased with the automotive demand in sight.

**Pig Iron.**—Aside from a small amount of routine buying in single car lots, little activity is to be noted in the pig iron market in so far as concerns demand from automotive foundries. The base price ranges from $22 to $22.50, the latter figure being general in single car transactions. Production is proportionate to the orders on blast furnaces' books which are comfortably filled for January and February operations.

**Aluminum.**—With inventories out of the way and following the National Automobile Show somewhat more activity is looked for. A number of transactions which have been hanging fire are being closed. The virgin metal situation is unaltered. Foundries are not disposed to accede to the price views of some of the sellers of remelted metal. The latter justify their asking prices by the tight conditions in the virgin market.

**Copper.**—Some improvement is noted in the demand for copper and brass products, but the ingot situation remains awry pending betterment in Europe's purchasing power. Professional tipsters predict an early return of active demand. They have indulged in this prediction before and it did not materialize, but eventually they are certain to come into their own.

# Calendar

**SHOWS**

Jan. 26-Feb. 2—Chicago, Annual Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.

Jan. 26-Feb. 2—Chicago, Annual Automobile Salon, Hotel Drake.

Feb. 4-9—Chicago, Tenth Annual National Motorcycle, Bicycle and Accessory Show, Broadway Armory, under the auspices of the Motorcycle and Allied Trades Association, A. B. Coffman, secretary.

**FOREIGN SHOWS**

April 2-13—Barcelona, Automobile Exposition, under the auspices of the Confederacion de Camaras Sindicales Espanolas del Automovilismo y Cielilismo, Palacio de Arte Moderno.

Aug. 23-Sept. 6—Toronto, Ont., National Automobile Show in conjunction with the Canadian National Exhibition under the sanction of the Canadian Automotive Equipment Association and the Automotive Industries of Canada.

**RACES**

Aug. 3—Lyons, France, European Grand Prix.

April 27—Trapani, Italy, International Automobile Race.

**CONVENTIONS**

Jan. 14-18 — Chicago, Annual Convention and Show of the American Road Builders' Association, the former to be held in the Congress and the latter in the Coliseum.

Jan. 30-31—Chicago, Fourth Annual Meeting of the Automotive Electric Service Association, Congress Hotel.

Jan. 31-Feb. 1—Rochester, N.Y., Winter Sectional meeting of the American Society for Steel Treating, Hotel Seneca. W. H. Eisenman, secretary, 4600 Prospect Avenue, Cleveland.

May 21-24—Detroit, International Motor Transport Congress under the auspices of the National Automobile Chamber of Commerce.

June — Washington, Pan American Highway Congress, under the auspices of the Pan American Highway Mission.

**S. A. E. MEETINGS**

January—The following sections will not hold meetings in January but will concentrate on the annual meeting of the Society in Detroit, Jan. 22-25: Cleveland, Detroit, Metropolitan, Mid-West, Washington and the proposed Milwaukee Section.

Jan. 17—Indiana Section, Motor Performance, H. L. Horning, Hotel Severin, Indianapolis, 8 p. m. Dinner, 6.30 p. m.

Jan. 22—Dayton Section, Research in Improving Handling and Utilizing Rubber Latex, B. J. Lemon, Dayton Engineers Club, 8 p.m. Dinner 6.30 p.m.

Jan. 22-25—Annual Meeting of the S. A. E.—Detroit.

Jan. 23—"The Carnival," Oriole Terrace, Detroit, 9 p. m.

Feb. 4—Buffalo Section, Engines for Oil vs. Oil for Engines, L. H. Pomeroy, A. Ludlow Clayden, Statler Hotel, Buffalo, 8 p.m.

Feb. 14—Indiana Section, Motor Tests and Research Work, C. P. Grimes, Hotel Severin, Indianapolis, 8 p.m. Dinner 6.30 p.m.

Feb. 14 — Metropolitan Section, Vehicle Depreciation.

March 13—Metropolitan Section, Replacement Parts and Accessories.

April 17—Metropolitan Section, Fleet Maintenance, F. W. Winchester.

May 15 — Metropolitan Section, What Roads and Steels Do to Automobiles.

## Factory Executives Who Attended Show

(*Continued from page* 109)

president; A. J. Banta, sales manager; E. R. Evans, engineer; C. M. Tichenor, superintendent, R. M. Hood, purchasing director, and E. LeRoy Pelletier, advertising manager.

Rollin—Rollin H. White, chairman of the board; James H. Heaslet, president; R. T. Hodgkins, vice-president; A. C. Hill, assistant general sales manager; C. B. Shanks, sales and advertising counsel; E. A. Callahan, purchasing director, and E. Soule, export manager.

Stephens—R. W. Lee, vice-president; O. P. Robb, sales manager; Preston A. Boyd, assistant treasurer, and E. F. Carlmark, assistant sales manager.

Sterling Knight—J. G. Sterling, vice-president, and J. V. Thomas, manager of sales.

Westcott—B. J. Westcott, president; E. H. Gilcrest, vice-president; J. H. Tuttle, chief engineer, and K. A. Heinzen, advertising manager.

Studebaker—A. R. Erskine, president; M. F. Wallering, vice-president; H. A. Biggs, vice-president in charge of sales; N. R. Feltis, treasurer; H. E. Dalton, general auditor; A. G. Rumpf, secretary and assistant treasurer; H. S. Vance, sales manager, and George E. Willis, foreign sales manager.

Stutz—William N. Thompson, president and general manager; H. R. Hyman, sales manager; E. T. Klee, purchasing agent; Charles S. Crawford, chief engineer; Walter P. Hanson, advertising manager; Earl Jacks, experimental engineer; Walter A. Weidely, service manager, Harry A. Anderson, district sales manager, and Roy Breeden, district sales manager.

Templar—T. L. Hausmann, president; T. O. Gibbs, treasurer; Fred Nehrbas, factory manager; Roy A. Jamieson, sales manager, and Ralph Chesnut, engineer.

Velie—W. L. Velie, president; W. L. Velie, Jr., export manager; F. E. Bradfield, first vice-president and general manager; H. S. Lord, director of sales; H. T. Wheelock, advertising manager, and L. E. McKie, district manager.

Wills Ste. Claire—C. Harold Wills, president and general manager; H. H. Moorman, treasurer; E. C. Morse, general sales manager, and W. H. Power, advertising counsel.

Willys-Overland Co.—John N. Willys, president, and L. R. Peed, general sales manager.

Yellow Cab—William F. Hamby, sales director of trucks.

## Renault with 12 Wheels Crosses Dunes of Sahara

NEW YORK, Jan. 9—A copyrighted cablegram to the New York Times from the Oasis of Tozuer, Southern Tunisia, announces the successful crossing of the great sand dunes of the Sahara between Southern Algeria and Southern Tunisia by a Renault fitted with twelve wheels. The distance covered was 186 miles, sixty-two of which are through the worst sand dunes of the whole desert, the journey being made in two days as compared with ten or twelve days required by camel caravans.

This is the first time an automobile ever has conquered the sand dunes. The Citroen expedition of a year ago traveled across the desert from north to south, from Touggourt to Timbuctoo.

The American representative of the Renault has not been advised as yet as to the mechanical features of the car that made the trip, and the cable story is indefinite, except that it states that the car has six pairs of wheels, eight of which are used for "receiving the propelling power from an ordinary 10-hp. engine of the type used on the small Renault car." It carried six besides the driver, and weighed nearly three tons loaded.

### MIDWEST RUBBER BANQUET

CHICAGO, Jan. 8—The annual banquet of the Midwest Rubber Manufacturers' Association will be held Jan. 29 at the Hotel Morrison. A business meeting and luncheon will be held at noon of the same day.

## Springfield Plants Increase Operations

SPRINGFIELD, MASS., Jan. 9—Automotive industries in this district have nearly all started the year by increasing production.

Rolls-Royce announces that a full force is being put to work to care for the many advance orders. Harry C. Beaver, general manager, reports 460 cars produced in 1923, as compared to 277 in 1922, and says that indications justify the expectation that 500 will be shipped this year.

American Bosch Magneto has had a 30 per cent increase of gross sales in the past year, according to President Arthur T. Murray, and enters the new year with the largest number of unfilled orders in its history. Its force is to be increased by 350 men within two weeks, he says, with further increases in prospect between now and April.

**Increase in Indian Sales**

Indian Motorcycle Co. sales made a 40 per cent increase in 1923, according to President Frank J. Weschler, with decided gains in export as well as home fields. Westinghouse is increasing its force and reports prospects good in its automotive equipment and small motors departments. Moore Drop Forging Co. continues to run at capacity day and night to meet the heavy demand for automotive parts, and plant improvements will enable several hundred more employees to be put on, matching the increase made in the last year.

Baush Machine Tool Co. doubled its business last year, General Manager Roger D. Babson says. This was essentially due to prosperity of the automobile interests, as reflected by its duralumin and automotive parts departments. Fisk Rubber is looking forward to a spring business that will set new records.